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No. 10-___ OFFICE OF THE CLERK

IN THE
Supreme Court of the United States

MARILYN MORRIS, ET AL.,

Petitioners,

v.

U.S. NUCLEAR REGULATORY COMMISSION, ET AL.,

Respondents.

On Petition for A Writ of Certiorari to the
United States Court of Appeals for the Tenth Circuit

PETITION FOR A WRIT OF CERTIORARI

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QUESTIONS PRESENTED

1. In determining whether public radiation doses from a proposed new uranium mine would exceed regulatory limits, could the U.S. Nuclear Regulatory Commission ("NRC") interpret 10 C.F.R. § 20.1301(a)(1) to allow it to ignore radioactive emissions from existing uranium mine waste on the mine site?

2. Where, in establishing a groundwater restoration surety for a proposed uranium mine, the NRC failed to follow its own criteria for protecting the drinking water on the site, did the NRC violate the Atomic Energy Act's prohibition against licensing operations that are inimical to public health and safety?

PARTIES TO THE PROCEEDING AND CORPORATE DISCLOSURE STATEMENT

The following parties were petitioners below and are petitioners here: Grace Sam, Marilyn Morris, Eastern Navajo Diné Against Uranium Mining ("ENDAUM"), and the Southwest Research and Information Center ("SRIC"). The United States and the United States Nuclear Regulatory Commission ("NRC" or "Commission") were the respondents below and are respondents here. Hydro Resources, Inc. ("HRI") was a respondent-intervenor below and is also a respondent-intervenor here.

ENDAUM is a nonprofit organization incorporated under the laws of the Navajo Nation and is exempt from taxation under Section 501(c)(3) of the Internal Revenue Code. ENDAUM does not issue stock and no parent corporation or publicly held corporation has ten percent or more ownership interest. ENDAUM's membership consists of concerned community members in Church Rock and Crownpoint, who are predominantly members of the Navajo Nation. ENDAUM's mission is to protect public health and the water of the communities of Church Rock and Crownpoint.

SRIC is a nonprofit organization incorporated under the laws of New Mexico and is exempt from taxation under Section 501(c)(3) of the Internal Revenue Code. SRIC does not issue stock and no parent corporation or publicly held corporation has ten percent or more ownership interest. SRIC's mission is to promote the health of people and communities, protect natural resources, ensure citizen participation in government decisions that affect their welfare, and secure environmental and social justice for present and future generations.

Marilyn Morris and Grace Sam are individual members of the Navajo Nation who reside and graze livestock near the proposed Church Rock mine sites.

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PETITION FOR A WRIT OF CERTIORARI

Petitioners respectfully petition for a writ of certiorari to review the judgment of the United States Court of Appeals for the Tenth Circuit in this case.

OPINIONS BELOW

The opinion of the panel of the court of appeals is reported at 598 F.3d 677, and is reprinted in the Appendix to the Petition ("Pet. App.") 1-67. The order denying rehearing or *en banc* review of the panel decision is reprinted at Pet. App. 261-62. The NRC orders reviewed by the court of appeals are reported at 64 N.R.C. 417, 63 N.R.C 510, 63 N.R.C. 1, 53 N.R.C. 31, and 52 N.R.C. 1, and are reprinted at Pet. App. 68-260.

JURISDICTION

The judgment of the court of appeals was entered on March 8, 2010. A request for rehearing or *en banc* review was denied on May 18, 2010. On July 23, 2010, Associate Justice Sotomayor extended the time in which to file this Petition up to and including September 15, 2010. The jurisdiction of this Court is invoked under 28 U.S.C. § 1254(1).

STATUTES AND REGULATIONS INVOLVED

The relevant provisions of the Atomic Energy Act, the National Environmental Policy Act, the Uranium Mill Tailings Radiation Control Act, and NRC's implementing regulations are reprinted at Pet. App. 263-270.

STATEMENT OF THE CASE

A. Procedural History

This case began in 1988, when HRI applied to the

NRC for a license to conduct *in situ* leach ("ISL") mining of uranium on four sites in the towns of Church Rock (Sections 8 and 17) and Crownpoint (Crownpoint and Unit 1) in northwestern New Mexico. Church Rock and Crownpoint both lie within the boundaries of the Navajo Nation and are located in the Eastern Navajo Agency. Pet. App. 3. The NRC issued a notice of opportunity for hearing in 1994, when it published the Draft Environmental Impact Statement for the proposed mine. *In re Hydro Res., Inc.,* LBP-98-9, 47 N.R.C. 261, 264 (1998), rev'd in part on other grounds, 48 N.R.C. 119 (1998). Petitioners requested a hearing in 1995, but the proceeding was held in abeyance pending the issuance of the Final Environmental Impact Statement ("FEIS") in 1997. *Id.,* 48 N.R.C. at 265-66.

In 1998, before hearings had begun, the NRC issued a license to HRI. Pet. App. 5. The NRC then conducted informal adjudicatory hearings on HRI's applications in two phases. In Phase I, the NRC addressed issues pertaining only to HRI's proposed mine on Section 8 at Church Rock. *Id.* at 7. In Phase II, the NRC adjudicated the lawfulness of the other three mine sites: Church Rock Section 17, Unit 1 and Crownpoint. *Id.* This petition and the case in the court of appeals concern only Church Rock Sections 8 and 17.

B. Radioactive Air Emissions at Section 17

HRI's Section 17 licensed area at Church Rock is located on land held in trust by the U.S. Government for the Navajo Nation and leased by the Bureau of Indian Affairs to local residents who live and graze their livestock there. Three families live on Section 17 *inside* the licensed area, and approximately 85 people live within five miles of the Section 8 and Section 17 mining sites. Pet. App. 7-8.

HRI's licensed area on Section 17 includes the site of the abandoned Old Church Rock Mine, an underground uranium mine that operated in the early 1960s and from 1977 to 1983 before it was purchased by HRI in the early 1990s. The surface remains contaminated by dust and rocks from the prior uranium mining operations. Those wastes continue to emit radiation in excess of the NRC's regulatory limits. *Id.*

In the 1997 FEIS, the NRC acknowledged that some parts of the Section 17 site already are radioactively contaminated, but asserted that "these areas may be cleaned up as part of the well field decontamination." Pet. App. 30 n.15. The NRC concluded that licensing the proposed uranium mine "may be result in a positive health effect at the Church Rock site." *Id.*

Nine years later, in the adjudicatory proceeding on the issue of whether HRI's license application for Section 17 satisfied 10 C.F.R. § 20.1301(a)(1)'s public radiation dose limits, the NRC changed course, holding that it has no authority to require HRI to clean up the mine site if it is licensed by the NRC. Pet. App. 98. As a result, HRI would now receive a license to operate Section 17 without ever having to clean up existing radioactive contamination that is nine to fifteen times the regulatory limit. *Id.* at 60 (Lucero, J. dissenting). Nevertheless, the NRC did not correct the now-disproven representation in the 1997 FEIS that the issuance of a license to HRI would likely benefit the public by leading to NRC-ordered cleanup of the existing contamination.

C. Groundwater Quality at Church Rock Section 8

1. Groundwater quality and ISL mining

In its undisturbed state, uranium is immobile in an aquifer. The mineralized zone of the aquifer contains high concentrations of chemicals such as uranium and radium, while surrounding groundwater may have low concentrations of these chemicals. J.A. 331, *Morris v. U.S. Nuclear Regulatory Comm'n*, 598 F.3d 677 (10th Cir. 2010) (No. 07-9505) ("C.A. J.A."). Thus, an aquifer with a mineralized ore zone may also have drinking water nearby. *See In re Hydro Resources, Inc.*, LBP-99-30, 50 N.R.C. 77, 105 (1999), affirmed, CLI-00-12, 52 N.R.C. 1 (2000).

By its nature, the ISL process of mining uranium in an aquifer "tend[s] to contaminate groundwater." Pet. App. 33. ISL mining involves establishing a series of injection and production wells that are laid out in a series of geometric patterns known as "well fields." Pet. App. 4. Mining is conducted by injecting a solution of water, dissolved oxygen, and sodium bicarbonate (known as "lixiviant") through injection wells and into the discrete areas of uranium mineralization, called "ore zones." The lixiviant dissolves the uranium in the ore zone and causes it to become mobile in the aquifer. Production wells then pump the uranium-laden solution (known as "pregnant lixiviant") to the surface for processing. At a processing plant, the uranium is chemically stripped from the groundwater, which is then returned to the aquifer to extract more uranium. *Id.* at 3-4. During the mining process, monitoring wells around the perimeter of the well field are used to detect excursion of lixiviant. *Id.* at 4.

In a given well field, pre-mining groundwater quality within the ore zone is generally poor due to the mineralization of the aquifer. C.A. J.A. 331. Pre-mining quality of groundwater that lies outside the ore zone but still within the well field, however, may be good. *Id.* Such is the case at Section 8 where uranium concentrations vary from as high as 10.9 milligrams per liter ("mg/l") in the ore zone to as low as 0.002 mg/l in other parts of the Section 8 mine site. C.A. J.A. 253. The uranium concentration of 0.002 mg/l is more than an order of magnitude below the Environmental Protection Agency's ("EPA's") drinking water standard of 0.03 mg/l.

2. NRC requirements for restoration and financial surety

HRI's license contains two related requirements with respect to restoration of groundwater at the termination of HRI's mining operation. First, after licensing but before mining may begin, HRI must establish "groundwater restoration goals" within the well field for an array of chemicals and radionuclides. Pet. App. 5, 40-42. Second, at the time of licensing HRI must establish a financial surety based on the estimated cost of restoring the groundwater at the conclusion of HRI's mining operation. *Id.* at 5.

a. Restoration goals

HRI's license requires it to establish a "primary restoration goal" of returning all contaminants to "average pre-lixiviant injection conditions," also known as "baseline" conditions. *Id.* at 40-42. These restoration goals are consistent with the Uranium Mill Tailings Restoration and Control Act, which requires the EPA to establish standards for protection of public health from hazards posed by inactive uranium milling sites. Pet. App. 263. Because groundwater quality may vary so widely within a mine site, primary restoration goals must be separately established for the groundwater within and outside the ore zone and HRI may not average those values. LBP-99-30, 50 N.R.C. at 99-100; *In re: Hydro Resources, Inc.*, LBP-05-17, 62 N.R.C. 77, 96-97 (2005), review denied, CLI-06-1, 63 N.R.C. 1 (2006).

The license allows HRI to postpone setting primary restoration goals until just prior to the commencement of mining activities, after HRI has installed its injection, production and monitoring wells. C.A. J.A. 320.[1] Thus, HRI has yet to establish the pre-mining baseline conditions for Section 8. Pet. App. 243.

b. Financial surety

NRC regulations require HRI to set aside a financial surety that is sufficient to cover the estimated cost of decommissioning its mine sites, including restoring groundwater. Pet. App. 44-45, 267-70. Groundwater restoration accounts for the majority of decommissioning costs and therefore the majority of the surety estimate. *In re Hydro Resources, Inc.*, LBP-04-3, 59 N.R.C. 84, 90 (2004).

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[1] If baseline concentrations of contaminants are lower than the maximum concentration limits ("MCLs") specified in the EPA's drinking water regulations, the license establishes a "secondary goal" of returning groundwater to those EPA MCLs. Pet. App. 41-42. When HRI received its license in 1998, however, EPA did not have an MCL for uranium, and therefore the NRC imposed a secondary restoration goal for uranium of 0.44 mg/l. LBP-05-17, 62 N.R.C. at 89. After the EPA determined that chronic ingestion of even low levels of uranium can cause kidney damage and promulgated a drinking water MCL for uranium of 0.03 mg/l, the NRC agreed to reduce the limit in HRI's license in order to be consistent with EPA. *Id.* at 89-92.

The amount of money that must be set aside for a groundwater restoration surety is based on the estimated cost of flushing enough water through a mined aquifer to return the groundwater quality to the primary or secondary restoration goals that will be established by HRI prior to mining, *i.e.,* baseline conditions or EPA drinking water standards. Pet. App. 112-113; C.A. J.A. 256.

While HRI must establish a surety at the time of licensing, its license does not require it to establish restoration goals until after licensing. Therefore, by necessity, HRI based its groundwater restoration cost estimate on only a limited amount of data about groundwater conditions on Section 8. Those data, presented in the FEIS, show that water quality at Section 8 varied from highly contaminated in the ore zone to drinking water quality outside the ore zone. C.A. J.A. 253. Even though HRI's license prohibits it from averaging ore zone and non-ore zone groundwater quality values in establishing primary restoration goals, the NRC allowed HRI to average those widely divergent water quality values for purposes of establishing a surety for Section 8. Pet. App. 243. The NRC concluded that it would be necessary to flush the Section 8 mine with nine "pore volumes" of water in order to restore the quality of the water to these average values. *Id.* at 47.

D. Decisions Below

1. Radioactive air emissions at Section 17

NRC regulation 10 C.F.R. § 20.1301(a)(1) limits the public radiation dose (*i.e.,* the total effective dose equivalent ("TEDE")) to 0.1 rem per year. Pet. App.

8. In the administrative adjudication of HRI's license, Petitioners contended that HRI could not satisfy § 20.1301(a)(1) at Section 17 because radiation doses from existing contamination on the site far exceeded the TEDE of 0.1 rem per year. *Id.* at 15, 95. But the Commission rejected Petitioners' argument on the ground that the radioactive debris on Section 17 is not part of HRI's "licensed operation." *Id.* at 98 The Commission also concluded that radioactive emissions from the debris constitute "background radiation" which is not subject to the dose limits in 10 C.F.R. § 20.1301(a)(1). *Id.* at 107.

On review, a majority of the court of appeals concluded that the NRC's interpretation of § 20.1301(a)(1) was entitled to deference because it was not "plainly erroneous" or inconsistent with the NRC's statements of intent in promulgating the regulations at the time it promulgated the regulations. *Id.* at 16-22. Because the majority relied on the Commission's interpretation of the term "licensed operation," it never reached the question of whether the NRC had applied a proper interpretation of the term "background radiation." *Id.* at 22. *See also* Pet. App. 91-108.

Judge Lucero dissented from the majority's interpretation of 10 C.F.R. § 20.1301(a)(1), concluding that it is "'inconsistent with the regulation' and thus warrants no deference." *Id.* at 62 (quoting *Thomas Jefferson Univ. v. Shalala,* 512 U.S. 504, 512 (1994)). Observing that the NRC's interpretation rendered specific exclusions from the rule "unnecessary," Judge Lucero concluded that the NRC's interpretation "violates a fundamental rule of construction." *Id.* at 64. Further, he concluded that "the majority's decision . . . will unnecessarily and unjustifiably compromise the health and safety of the people who currently live within and immediately downwind of Section 17..." *Id.* at 61.

2. Groundwater restoration goals and surety for Section 8

In the adjudicatory proceeding before the NRC, Petitioners charged that in its Environmental Report for the proposed mine, HRI had already established baseline groundwater conditions that were based on averages of uranium concentrations in the ore zone and the surrounding area of much lower uranium concentration. C.A. J.A. 384-85. Petitioners asserted that HRI "may use this same tactic in setting restoration goals for the project sites." *Id.*

The Presiding Officer rejected Petitioners' claim, however, concluding that HRI had not yet established baseline conditions, and would not do so until after the license was issued. LBP-99-30, 50 N.R.C. at 99-100. He also noted that "baseline should be determined in both the production area and the mine area separately." *Id.* at 100. This prohibition against averaging ore zone and non-ore-zone water quality was also affirmed in a subsequent decision, LBP-05-17, 62 N.R.C. at 96-97.

Despite the NRC's clear instruction that HRI may not average ore zone and non-ore-zone water quality values to set restoration goals, the NRC did just that in concluding that HRI's surety was adequate and that it had a reasonable assurance that HRI could clean up the Section 8 aquifer at the conclusion of its mining operation. This assumption is made clear in CLI-00-12, in which the Commission stated its expectation that HRI would not have to restore uranium concentrations in Section 8 groundwater to "a cleaner, more stringent level" than 1.8 mg/l, the "*average level* already existing in Section 8." Pet. App. 243 (citing FEIS at 3-36, C.A. J.A. 253) (emphasis added). The FEIS itself reports 1.8 mg/l as the "mean' between uranium concentrations of 10.9 mg/l in the ore zone and 0.002 mg/l in the non-ore-zone. C.A. J.A. 253. The Commission did not change its conclusion when it revisited the surety issue in CLI-04-33, Pet. App. 131.

The court of appeals affirmed the NRC's decision, deferring to the agency's determination that HRI's proposed groundwater restoration efforts and attendant surety estimates are adequate. *Id.* at 51-52. Additionally, the court affirmed the NRC's conclusion that it would be reasonable to use Section 8 to demonstrate that HRI could restore groundwater before permitting it to mine at its other sites. *Id.* at 51. However, the court did not address the validity of NRC's assumption that it could use average values for ore zone and non-ore zone water quality to assess the adequacy of HRI's surety and the feasibility of groundwater restoration.

REASONS FOR GRANTING THE WRIT

The Court should take review of this case because, as Judge Lucero noted in his dissent, the majority's decision "violates a fundamental rule of construction" by accepting an interpretation of § 20.1301(a)(1) that renders other terms of the rule superfluous. Pet. App. 64 (Lucero, J. dissenting). The NRC's interpretation of the rule is also inconsistent with other statements of intent by the NRC, not only in the § 20.1301(a)(1) rulemaking context but also throughout the course of the administrative proceeding. While the NRC used the 1997 FEIS to assure members of the public that licensing of the mine would benefit them by resulting in an NRC-ordered cleanup of highly contaminated areas of the Section 17 mine site, the majority has now affirmed the NRC's subsequent disclaimer of any authority to order such a cleanup. Thus, the majority has allowed the government to renege on its promise to the members of the public living near the HRI mine, who must now live indefinitely with radioactive contamination that will "unnecessarily and unjustifiably compromise the health and safety of the people who currently live within and immediately down wind from Section 17." *Id.* at 60 (Lucero, J. dissenting).

Moreover, by approving a financial surety for groundwater restoration that was based on the impermissible assumption that high quality groundwater values could be averaged with values for the polluted ore zone, the court countenanced the NRC's violation of the Atomic Energy Act's prohibition against licensing operations that are inimical to public health and safety. Pet. App. 264. Because the court's decision is inconsistent with the law and puts public health at risk, it should be reviewed.

ARGUMENT

I. The NRC's Interpretation of 10 C.F.R. § 20.1301, as Upheld by the Court of Appeals, Violates Fundamental Principles of Statutory Interpretation as Outlined by this Court.

A. The Plain Language of 10 C.F.R. § 20.1301(a)(1) Does not Support the NRC's Interpretation of the Regulation.

NRC regulation 10 C.F.R. § 20.1301(a)(1) requires that:

> (a) Each licensee shall conduct operations so that –
>
> > (1) The total effective dose equivalent to individual members of the public from the licensed operation does not exceed 0.1 rem (1 mSv) in a year, exclusive of the dose contributions from background radiation, from any administration the individual has received, from exposure to individuals administered radioactive material and released under § 35.75, from voluntary participation in medical research programs, and from the licensee's disposal of radioactive material into sanitary sewerage in accordance with § 20.2003.

Pet. App. 265. The majority opinion defers to the NRC's interpretation that the term "licensed operation" means only HRI's activities in removing uranium from the ground and chemically processing it, and therefore § 20.1301(a)(1) does not apply to the significant radioactive emissions from pre-existing, human-caused mine waste on HRI's site. Pet. App. 16-18 . The majority found that an alternative reading was not compelled by the regulation's plain language. *Id*. at 17.

As Judge Lucero noted in his dissent, however, the NRC's interpretation of the term "licensed operation" as used in 10 C.F.R. § 20.1301(a)(1) renders other terms of the regulation superfluous. For instance, language in § 20.1301(a)(1) excluding sanitary sewers and medical operations from the regulation's scope would not be necessary because those activities are not part of the specific activity to be conducted under the license. While the majority asserts that the language in the regulation excluding sanitary sewers and medical administration "clarifies" that the NRC has other regulations that govern those matters (Pet. App. 17), in fact "[t]here is no reason to expressly exclude radiation from medical research programs if 'licensed operation,' by definition, refers only to activity of the licensee." *Id.* at 64.

Further, the majority completely fails to explain its circular statement that the exclusion of background radiation "makes sense in its own right" under the NRC's interpretation of the regulations. Pet. App. 17. In fact, the exclusion of background radiation does not make sense under any reasoning, because this interpretation renders the exclusion "superfluous," in violation of the "well-established principle of statutory and regulatory interpretation that a provision should be read such that no term is rendered nugatory." *Id.* at 63. *See also Thomas Jefferson Univ.*, 512 U.S. at 513.[2]

B. The Majority's Opinion is Inconsistent with Other Part 20 Regulations and the Regulations' History.

The majority also misreads the history of the 1991 rulemaking in which the NRC strengthened radiation doses limits for members of the public. Pet. App. 18-21. According to the majority, the rulemaking history supports the NRC's interpretation of 10 C.F.R. § 20.1301(a)(1) because it "specifically linked the relevant measured dose to the 'licensed operation' by changing regulatory language that had referred to "both licensed and unlicensed sources" to the "licensed operation." *Id.* at 18.

But the court's analysis begs the question of what the NRC meant by the term "licensed operation," which is not defined in the regulations. The majority apparently assumes that "licensed operation" means essentially the same thing as "licensed sources," and therefore the exclusion of the term "unlicensed sources" from the 1991 rule shows that the NRC did not intend the rule to cover unlicensed sources in the licensee's possession. That reading of the regulations is not supported by the context of the rulemaking, however, because the statement of regulatory purpose that accompanies 10 C.F.R. § 20.1301(a)(1) expresses the Commission's intent to regulate radiation doses from both "licensed and unlicensed radioactive material."[3]

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[2] Because the majority opinion defers to the NRC's interpretation of "licensed operation," it does not address the issue of whether the NRC's interpretation of "background radiation" is entitled to deference. Judge Lucero's dissent addresses that issue, however, and concludes that the NRC's interpretation of "background radiation" violates canons of regulatory construction. Pet. App. 64-65. Because the NRC's interpretation of its regulatory language renders significant portions of those regulations superfluous, the majority should not have afforded that interpretation any deference.

Similarly, a colloquy in the 1991 rulemaking expresses the Commission's intent to regulate "doses from radiation and radioactive material under the licensee's control." 56 Fed. Reg. 23,360, 23,374 (May 21, 1991). *See also* 51 Fed. Reg.1032, 1133 (Jan. 9, 1986) (NRC's statement in the proposed rule regarding the impracticality of regulating radiation doses from several sources, "not all of which are controlled by the licensee.")

For the same reason, the fact that the NRC reduced the maximum permissible radiation dose from 0.5 rem/year in the proposed rule to 0.1 rem/year in the final rule does not, as the majority suggests, show that the NRC intended to exclude from the scope of the rule any radiation source in the licensee's control that is not also used in the licensee's activities. Pet. App. 21. It simply demonstrates that in contrast to the proposed rule, which covered radiation sources both within and beyond the licensee's control, the final rule covers only radiation sources within the licensee's control.

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[3] Section 20.1001(b) provides that:

> It is the purpose of the regulations in this part to control the receipt, possession, use, transfer, and disposal of licensed material by any licensee in such a manner that the total dose to an individual (including doses resulting from *licensed and unlicensed radioactive material* and from radiation sources other than background radiation) does not exceed the standards for protection against radiation prescribed in this part.

(emphasis added).

The majority also states that the NRC's reading of § 20.1301(a)(1) is consistent with the Commission's stated interest in establishing standards that are "'practical from the standpoint of the licensees'" and that meet the Atomic Energy Act's policy of developing nuclear energy. Pet. App. 19 (quoting 25 Fed. Reg. 8595 (1960)). But no practical consideration or general statement of policy could be fairly read to permit the NRC to subvert the specific command of 42 U.S.C. § 2099 that it may not issue a source materials license that would be "inimical to . . . the health and safety of the public." As Judge Lucero states in his dissent, that is exactly what the NRC has done here with the approval of the majority. Pet. App. 60.

Finally, the majority does not address the fact that the NRC's interpretation of 10 C.F.R. § 20.1301(a)(1) renders false the 1997 FEIS' statement that high levels of existing contamination on the Church Rock Section 17 site "may be cleaned up as part of the well field decontamination." Pet. App. 30 n.15. The court leaves unexplained the question of how, if the NRC has no authority over HRI's existing mine waste for purposes of enforcing 10 C.F.R. § 20.1301(a)(1), it could claim in the FEIS that it has the authority to order HRI to clean up the existing contamination at the conclusion of HRI's mining operation.

Nor has the NRC attempted to correct what now constitutes a misstatement in the FEIS that licensing of the HRI mine is likely to benefit the community by resulting in an NRC-ordered cleanup of existing contamination. *See* discussion above at 3-4. The NRC simply allowed the 1997 FEIS to stand uncorrected, despite its obligation under the National Environmental Policy Act to provide "carefully consider[ed] and "detailed" information to the public regarding the environmental consequences of its decisions. *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349-350 (1989).

II. The NRC-Approved Groundwater Surety for Groundwater Restoration at Section 8 Violates the Atomic Energy Act's Public Health Protection Mandate.

Consistent with the Atomic Energy Act's requirement that the issuance of an NRC source materials license may not be "inimical to public health and safety," 42 U.S.C. § 2099 (Pet. App. 264), NRC decommissioning funding requirements are designed to ensure that at the end of operations, a licensee will possess "sufficient funds to eventually decontaminate and decommission the site to a level at which public health and safety is assured." *Shieldalloy Metallurgical Corp.* (Newfield, NJ); Director's Decision Under 10 C.F.R. 2.206, 45 N.R.C. 338, 342 (1997). The NRC runs afoul of this mandate by arbitrarily basing HRI's initial groundwater restoration effort and surety estimate on the assumption that HRI needs to restore groundwater at Section 8 only to the average of ore zone and non-ore zone groundwater quality, not the drinking water quality currently found in some areas of Section 8. Pet. App.

243. Contrary to its own conclusion that baseline restoration goals cannot be established by averaging ore zone and non-ore zone water quality, the NRC has founded HRI's restoration surety on a preliminary restoration goal estimated by averaging extremely low contamination values for potable non-ore-zone water with extremely high values for polluted ore zone water.

Thus, even though baseline conditions have yet to be definitively established, the NRC has impermissibly assumed that average groundwater conditions are poor and approved a surety that is correspondingly low. As a result, HRI's financial surety for groundwater restoration at Section 8 is unlikely to be sufficient to restore good quality groundwater outside the ore zone to pre-mining conditions in the event that HRI is financially unable to do so. By effectively allowing HRI to degrade local residents' potable water source, the NRC has violated the Atomic Energy Act's public health protection mandate in 42 U.S.C. § 2099 and the NRC's own interpretation of the purpose of surety estimates as set forth in *Shieldalloy*.

In affirming the NRC, the court reasoned that the surety for Section 8 applies only to the "outset" of HRI's mining project and that the surety was subject to future revisions for the other three mining sites. Pet. App. 52-53. Setting aside the very high standard for obtaining a hearing on future revisions to the surety (Pet. App. 55), it is no consolation to the neighbors of the Section 8 mine that the aquifer on which they depend for drinking water will have been sacrificed as an initial experiment in setting groundwater restoration surety amounts. As the court has acknowledged, groundwater restoration to baseline conditions at ISL projects is exceedingly difficult, if not impossible and at best, only one ISL operation may have successfully restored groundwater. Pet. App.35-36.[4] Like the NRC, the court of appeals failed to account for the real possibility that HRI may not be able to complete the demonstration experiment and leave Section 8 contaminated because of an inadequate groundwater restoration surety. This kind of experiment is not contemplated by the Atomic Energy Act's requirement for protection of public health and therefore warrants review.

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[4] In note 19 of its opinion, the panel states that there is evidence in the record that groundwater quality was successfully restored at the Bison Basin project, without providing a record citation. Pet. App. 36. However, that assertion was not supported in the administrative case with any evidence, and the court does not cite any. To Petitioners' knowledge, no ISL mining operation has ever restored groundwater to pre-mining conditions.

CONCLUSION

The petition for certiorari should be granted.

Respectfully submitted,

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September 2010

MARILYN MORRIS, GRACE SAM, EASTERN NAVAJO DINE AGAINST URANIUM MINING "ENDAUM," SOUTHWEST RESEARCH AND INFORMATION CENTER "SRIC," Petitioners, v. UNITED STATES NUCLEAR REGULATORY COMMISSION, UNITED STATES OF AMERICA, Respondents, HYDRO RESOURCES, INC., Intervenor-Respondent. NAVAJO NATION, Amicus curiae.

No. 07-9505

UNITED STATES COURT OF APPEALS FOR THE TENTH CIRCUIT

598 F.3d 677; 2010 U.S. App. LEXIS 4802; 70 ERC (BNA) 1097

March 8, 2010, Filed

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Louis Denetsosie, Attorney General and David A. Taylor, Senior Attorney, Natural Resource Unit, Navajo Nation Department of Justice, filed an amicus curiae brief for the Navajo Nation.

JUDGES: Before LUCERO, EBEL and FRIZZELL,* Circuit Judges. LUCERO, J., dissenting.

OPINION BY: EBEL

OPINION

EBEL, Circuit Judge.

The Nuclear Regulatory Commission ("NRC") issued Hydro Resources, Inc. ("HRI") a license to conduct in situ leach mining for uranium on four sites in northwest New Mexico. In this case, Petitioners – Eastern Dine Against Uranium Mining, a Navajo community organization, Southwest Research and Information Center, a non-profit environmental education organization, and two local ranchers, Grace Sam and Marilyn Morris – seek review of the NRC's licensing decision. Petitioners assert that the NRC, in issuing HRI's license, violated two federal statutes – the Atomic Energy Act ("AEA"), which sets forth specific requirements that an applicant must meet before obtaining a license, and the National Environmental Policy Act ("NEPA"), which requires, in more general terms, that an agency give a "hard look" to the environmental impact of any project or action it authorizes. Having jurisdiction to review the agency's licensing decision under 28 U.S.C. § 2342(4) and 42 U.S.C. § 2239(b), as well as the Administrative Procedures Act ("APA"), 5 U.S.C. § 702, we DENY the petition for review and uphold the NRC's licensing decision in all respects.

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* Honorable Gregory K. Frizzell, District Court Judge, Northern District of Oklahoma, sitting by designation.

I. BACKGROUND

In 1988, HRI applied with the NRC for a license to conduct *in situ* leach ("ISL") uranium mining at four locations in McKinley County, New Mexico, near the Navajo Indian Reservation. Two of these sites, referred to as Sections 8 and 17, are adjacent to each other and are both located near Church Rock, New Mexico; the other two sites, Unit One and Crownpoint, are located near Crownpoint, New Mexico. The entire project is known as the Crownpoint Uranium Project.

ISL mining involves injecting lixiviant – a mixture of ground water charged with oxygen and bicarbonate – into the "ore zone," the underground geological formation containing the uranium deposits. As the lixiviant is pumped through the ore zone, the uranium dissolves into the lixiviant. This now "pregnant lixiviant" is then pumped back to the surface, where the uranium is separated from the lixiviant, processed into yellowcake, and shipped to other facilities to be enriched for use as reactor fuel. The "barren lixiviant" is re-charged with oxygen and bicarbonate and re-injected into the ore zone to repeat the cycle.

In order to conduct its ISL operation, HRI plans to create a number of "well fields" at each mining site. Each "well field" includes one production well located in the midst of several injection wells, all spaced in a five- or seven-well geometric pattern.[1] As the lixiviant is pumped by the injection wells through the ore zone, a greater amount of water is extracted through the middle production well, lowering the pressure in the center of the well field and thereby drawing the uranium-enriched lixiviant to the production well to be pumped to the surface. The production and injection wells, which tap into the Westwater Canyon aquifer, will be surrounded by monitoring wells, both horizontally in that aquifer and vertically in other aquifers, to insure that there are no excursions of lixiviant outside each well field being mined.

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[1] The Environmental Protection Agency ("EPA") and the State of New Mexico regulate the design, construction, testing, and operation of these wells. HRI's compliance with those regulations is not at issue in this review petition.

In 1997, the NRC, in cooperation with the Bureau of Land Management ("BLM") and the Bureau of Indian Affairs ("BIA"), issued a final environmental impact statement ("FEIS"), recommending that the NRC grant HRI's license application.[2] The NRC did so, issuing HRI a license in January 1998.

This license imposes a number of requirements on HRI. Chief among those is the requirement that, when HRI is finished mining each site, it must reclaim the site and restore the quality of the groundwater. In order to insure this restoration occurs, the license requires HRI to provide a surety to cover the estimated cost of those reclamation efforts.

The NRC, during its proceedings addressing HRI's license application, permitted Petitioners to intervene because they, or their members, "use[ ] a substantial quantity of water personally or for livestock from a source that is reasonably contiguous to either the injection or processing sites" for the proposed mining locations. *In re Hydro Res., Inc.*, 47 N.R.C. 261, 263, 275-78, 286 (1998), *rev'd in part on other grounds*, 48 N.R.C. 119 (1998). After issuing

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[2] Because the four mining sites are very near the Navajo Reservation, the NRC, along with the BIA, invited the Navajo Nation to participate in the drafting of the FEIS as a cooperating agency. *See* 10 C.F.R. §§ 51.14(a), 51.28(a)(5). The Navajo Nation declined that offer, however, based both upon the Nation's "executive order formally recognizing the 1983 tribal moratorium on uranium mining on Navajo lands," and the Nation's announced opposition to HRI's proposed Crownpoint uranium project. (Jt. App. at 208-10.)

HRI its license, the NRC conducted a bifurcated informal adjudicatory hearing, pursuant to 10 C.F.R. Part 2, Subpart L.[3] *See In re Hydro Res., Inc.*, 47 N.R.C. at 263.

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[3] These administrative proceedings, then, occurred in two parts, *see* 10 C.F.R. Part 2, Subpart A:

> 1) The NRC prepared the draft environmental impact statement ("DEIS"), then published it and sought public comment. *See* 59 Fed. Reg. 56,557-02 (Nov. 14, 1994). In light of the DEIS's recommendation that the NRC grant HRI's request for a license, Petitioners and a number of others who opposed HRI's license application sought to intervene. The NRC concluded Petitioners had standing to challenge the license application and so permitted them to intervene. The NRC, however, abated Petitioners' challenge until after the NRC made a final decision concerning HRI's license application. Eventually, the NRC completed the FEIS, which recommended issuing HRI the license. The NRC then issued HRI a license.
>
> 2) After the NRC issued HRI's license, the NRC, based on Petitioners' earlier requests, conducted an informal adjudicatory hearing, pursuant to 10 C.F.R. Part 2, Subpart L. *See In re Hydro Res., Inc.*, 47 N.R.C. at 263. Although 10 C.F.R. Part 2 includes rules governing a number of different types of NRC hearings, including formal adjudicatory hearings and hearings regarding special licenses, *see* 10 C.F.R. Part 2, the parties agree that, in this case, an informal adjudicatory hearing was appropriate. *See* 10 C.F.R. § 2.310 (addressing "Selection of Hearing Procedures"). It is during this informal adjudicatory hearing that Petitioners were able to challenge the NRC's decision to issue the license, as well as the adequacy of the FEIS. The NRC ultimately rejected all of Petitioners' challenges and upheld its decision to issue HRI the

(Continued on following page)

In Phase I of these administrative proceedings, the NRC conducted a hearing specifically addressing only the Section 8 site near Church Rock. The NRC addressed this site first because that is where HRI intends to begin its ISL operations. In a series of decisions, the NRC upheld HRI's license as it pertained to that one site. Phase II of these administrative proceedings then addressed HRI's other three mining sites, ultimately upholding HRI's license as it pertained to those sites, as well.

In this petition for review, Petitioners now challenge several of the NRC determinations pertaining only to the Church Rock Sections 8 and 17 sites. This court granted both HRI's motion to intervene in this review proceeding and the Navajo Nation's request to file an amicus brief.

II. AIRBORNE RADIATION AT SECTION 17

The licensed area in Section 17, located near Church Rock, New Mexico, is

> on land held in trust by the U.S. Government for the Navajo Nation and leased by the Bureau of Indian Affairs to local residents who live and graze their livestock there. Three

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license. It is that final agency action – the NRC's issuing HRI a license after rejecting Petitioners' administrative challenges – that is at issue here. *See* 5 U.S.C. § 704 (providing for judicial review of final agency action).

> families live on Section 17 inside the licensed area, and approximately 850 people live within five miles of the Section 8 and Section 17 mining sites.

(Pet. Br. at 14 (citing Jt. App. at 245, 835-38).) "HRI's licensed area on Section 17 includes the site of the abandoned Old Church Rock Mine, an underground [conventional] uranium mine that operated in the early 1960s and from 1977 to 1983[,] before it was purchased by HRI." (*Id.* at 15 (citing Jt. App. at 1354).) As a result of that prior mining operation, the site contains debris and waste that emit airborne radiation.[4]

Petitioners contend that the NRC, in considering HRI's licensing application, failed to take into account the airborne radiation already being emitted at Section 17, contrary to both the Atomic Energy Act of 1954, as amended by the Uranium Mill Tailings Radiation Control Act of 1978 ("AEA"), 42 U.S.C. §§ 2011-2297h-13, and the National Environmental Policy Act ("NEPA"), 42 U.S.C. §§ 4321-4370f.

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[4] During the administrative appeal of the NRC's licensing decision, the NRC's Presiding Officer ("P.O.") found that the earlier conventional underground mine had been properly capped and, therefore, the mine itself was not the source of any current airborne radiation. Petitioners do not challenge that finding.

A. Atomic Energy Act

NRC regulations promulgated under the AEA limit the amount of airborne radiation from an NRC-licensed operation to 0.1 rem in a year. *See* 10 C.F.R. § 20.1301(a)(1). The parties agree that HRI's ISL mining will emit only negligible airborne radiation, well under that limit. The problem at Section 17 is that the debris from the prior conventional mining operation already emits a greater amount of airborne radiation than the NRC regulations allow, even before considering the airborne radiation that the ISL mining might produce. Petitioners argue that because this site already exceeds the airborne emissions allowed under § 20.1301(a)(1), the NRC cannot license another operation on that same site. The NRC, however, interpreted its regulations instead to require the agency to consider under § 20.1301(a)(1) only the amount of airborne radiation that the operation seeking the license – here, HRI's ISL mining – will emit irrespective of the airborne radioactive emissions already occurring on the site. *See In re Hydro Res., Inc.*, 63 N.R.C. 510, 512, 515 (2006). Affording the agency's interpretation of its own regulations proper deference, we uphold that determination.

1. Standard of review

As Petitioners acknowledge, "[w]e must give substantial deference to an agency's interpretation of its own regulations." *Thomas Jefferson Univ. v.*

Shalala, 512 U.S. 504, 512, 114 S. Ct. 2381, 129 L. Ed. 2d 405 (1994) Here, then, "[o]ur task is not to decide which among several competing interpretations best serves the regulatory purpose. Rather, the agency's interpretation must be given controlling weight unless it is plainly erroneous or inconsistent with the regulation." *Id.* (quotations omitted); *see also Fed. Express Corp. v. Holowecki,* 552 U.S. 389, 397, 128 S. Ct. 1147, 170 L. Ed. 2d 10 (2008); *Nat'l Ass'n of Home Builders v. Defenders of Wildlife,* 551 U.S. 644, 672, 127 S. Ct. 2518, 168 L. Ed. 2d 467 (2007); *Ariz. Pub. Serv. Co. v. U.S. Envtl. Prot. Agency,* 562 F.3d 1116, 1123 n.5 (10th Cir. 2009). Therefore, "we must defer to the Secretary's interpretation unless an alternative reading is compelled by the regulation's plain language or by other indications of the Secretary's intent at the time of the regulation's promulgation." *Thomas Jefferson Univ.,* 512 U.S. at 512 (quotation omitted). "This broad deference is all the more warranted when, as here, the regulation concerns a complex and highly technical regulatory program, in which the identification and classification of relevant criteria necessarily require significant expertise and entail the exercise of judgment grounded in policy concerns." *Id.* (quotations omitted); *see Envtl. Def. Fund v. United States Nuclear Regulatory Comm'n,* 902 F.2d 785, 789 (10th Cir. 1990) (noting, in addressing challenges to NRC's rulemaking, that "[t]he NRC's resolution of technical matters, like the regulation of uranium and thorium mill tailings, is a technical judgment 'within its area of special expertise, at the frontiers of science where a reviewing court must generally be most deferential'") (quoting *Baltimore Gas & Elec. Co. v. Natural Res. Def. Council, Inc.*, 462 U.S. 87, 103, 103 S. Ct. 2246, 76 L. Ed. 2d 437 (1983) (alteration omitted)).

2. Analysis

The AEA requires HRI to obtain a license from the NRC in order to conduct ISL mining.[5] *See* 42 U.S.C. § 2092. The NRC may not grant a license application, however, "if, in the opinion of the Commission, the issuance of a license to such person for such purpose would be inimical to the common defense and security or the health and safety of the public." 42 U.S.C. § 2099; *see also* 10 C.F.R. § 40.32(d).

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[5] The AEA specifically provides, in pertinent part, that, "[u]nless authorized by a general or specific license issued by the Commission, . . . no person may transfer or receive in interstate commerce, transfer, deliver, receive possession of or title to or import or export from the United States any source material [such as uranium] after removal from its place of deposit in nature." 42 U.S.C. § 2092; *see also id.* § 2014(z) (defining source material to include uranium or ores containing uranium). Although this licensing requirement does not apply to conventional uranium mining, *see Barnson v. United States*, 816 F.2d 549, 554-55 (10th Cir. 1987), the NRC has interpreted the AEA to apply to ISL mining because, during that procedure, the uranium is "remov[ed] from its place of deposit in nature" at the time the uranium dissolves into the lixiviant underground and the miner only takes possession of it after it is then pumped to the surface (Jt. App. at 1248-49). No one challenges here the NRC's interpretation of this regulation to apply the AEA to ISL uranium mining.

The NRC has adopted regulations to implement this statutory mandate. *See* 10 C.F.R. § 20.1001(a).[6] Most relevant here, these implementing regulations "establish standards for protection against ionizing radiation resulting from activities conducted under licenses issued by the" NRC.[7] *Id.*; *see* 10 C.F.R. Pt. 20.

> It is the purpose of the[se] regulations . . . to control the receipt, possession, use, transfer, and disposal of licensed material by any licensee in such a manner that the total dose to an individual (including doses resulting from licensed and unlicensed radioactive material and from radiation sources other than background radiation) does not exceed the standards for protection against radiation prescribed in the regulations in this part. However, nothing in this part shall be

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[6] The NRC applied the regulations in effect at the time it issued HRI a license, in January 1998. The regulations found in 10 C.F.R. Part 20 were promulgated en masse in 1991, after HRI filed its license application, but before the NRC issued the license. *See* 10 C.F.R. Part 20, Subparts A, D; *see also* 56 Fed. Reg. 23,391, 23,398 (May 21, 1991). *See generally In re TMI*, 67 F.3d 1103, 1110-12 (3d Cir. 1995) (addressing revisions).

[7] 10 C.F.R. Part 20 provides for "detailed federal standards for protection against radiation." *Roberts v. Fla. Power & Light Co.*, 146 F.3d 1305, 1307 n.4 (11th Cir. 1998). These regulations address doses of ionizing radiation, that is, radiation stemming from "alpha particles, beta particles, gamma rays, x-rays, neutrons, high-speed electrons, high-speed protons, and other particles capable of producing ions. Radiation, as used in this part, does not include non-ionizing radiation, such as radio- or microwaves, or visible, infrared, or ultraviolet light." 10 C.F.R. § 20.1003.

> construed as limiting actions that may be necessary to protect health and safety.

Id. § 20.1001(b).

By the specific regulation at issue here, 10 C.F.R. § 20.1301, the NRC adopted radiation "Dose limits for individual members of the public." 10 C.F.R. Pt. 20, Subpt. D. A "[m]ember of the public means any individual except when that individual is receiving an occupational dose," which is "the dose received by an individual in the course of employment," 10 C.F.R. § 20.1003. Most pertinent to this case, 10 C.F.R. § 20.1301(a) provides, in relevant part:

> Each licensee shall conduct operations so·that –
>
> (1) The total effective dose equivalent [("TEDE")] to individual members of the public from the licensed operation does not exceed 0.1 rem (1 mSv) in a year, exclusive of the dose contributions from background radiation, from any medical administration the individual has received, from exposure to individuals administered radioactive material and released under § 35.75, from voluntary participation in medical research programs, and from the licensee's disposal of radioactive material into sanitary sewerage in accordance with § 20.2003. . . .

10 C.F.R. § 20.1301(a).[8]

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[8] Total effective dose equivalent, or TEDE, is "the sum of the deep-dose equivalent (for external exposure) and the committed

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effective dose equivalent (for internal exposures)." 10 C.F.R. § 20.1003 (2003) (subsequently revised). The "[d]eep-dose equivalent . . . , which applies to external whole-body exposure, is the dose equivalent at a tissue depth of 1 cm," while a "[c]ommitted effective dose equivalent . . . is the sum of the products of the weighting factors [provided in the regulations] applicable to each of the body organs or tissues that are irradiated and the committed dose equivalent to these organs or tissues." *Id.*

The limits

> "in present NRC regulations . . . have been set at a level which is conservatively arrived at by incorporating a significant safety factor. Thus, a discharge or dispersal which exceeds the limits in NRC regulations . . . although possible cause for concern, is not one which would be expected to cause substantial injury or damage unless it exceeds by some significant multiple the appropriate regulatory limit."

Dumontier v. Schlumberger Tech. Corp., 543 F.3d 567, 570-71 (9th Cir. 2008) (quoting 10 C.F.R. § 140.81(b)(1)), *cert. denied*, 129 S. Ct. 1329, 173 L. Ed. 2d 587 (2009).

According to the NRC, an individual in the United States receives, on average, a total annual dose of 3 mSv, or 300 mrem, resulting from radiation that is generally breathed, ingested or absorbed. An individual's annual dose of radiation will vary, however, depending upon many things, including geographic location. So people living "in well-ventilated wooden houses on sandy soil near the ocean would receive a minimal dose from radon – one tenth of the United States average – and a minimal external gamma dose – about one-fourth the average. With an internal and cosmic ray component of about average, the total dose to these individuals is only 1mSv . . . per year." (Jt. App. at 1164.) On the other hand, "people living in Denver, Colorado, could receive double the cosmic ray dose, triple the gamma dose, and quadruple the radon dose. With a somewhat higher intake of radionuclides from drinking water, the total dose is about 10 mSv . . . per year." (*Id.*) "Overall, this range of 1 to 10 mSv . . . – a span of a factor of ten – is typical of the variation in background doses for most United States citizens in a given year."

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In this case, the NRC's presiding officer, during Petitioners' administrative appeal of the NRC's licensing decision, "found that HRI's [ISL mining] operations would not emit airborne radiation in excess of the 0.1-rem 'total effective dose equivalent' (TEDE) limit set out in Part 20 of [the NRC's] regulations." (Jt. App. at 1354.) Petitioners, in their petition for review, do not challenge that finding. Instead, they assert that the airborne radiation emitted by the waste and debris from the prior conventional mining operations on Section 17, considered by itself, already exceeds § 20.1301(a)(1)'s limit of 0.1 rem. And the NRC does not dispute that.[9] The specific question presented here, then, is whether § 20.1301(a)(1) requires the NRC, in considering HRI's licensing application, to consider only the negligible airborne radiation expected to result from HRI's ISL mining operation or, instead, to aggregate that minute amount of airborne radiation with the already existing radioactive emissions from the previously abandoned conventional mine site. The NRC determined

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(*Id.*) The FEIS addressing HRI's license application estimated that "[t]he average whole-body dose rate to the population in this part of New Mexico includes a dose of 1.5 mSv/year . . . from local natural background radiation and 0.75 mSv/year . . . from medical procedures, based on national average. Therefore, total background estimated to be about 2.25 mSv/year. . . ." (*Id.* at 1146.)

[9] Intervenor HRI does dispute this. For our purposes, here, however, we will assume that the aggregate dose resulting from the conventional mining debris would exceed the § 20.1301(a)(1) limit of 0.1 rem annually.

that it need only consider the radioactive emissions expected from the ISL mining operations HRI sought to license.

a. Whether 10 C.F.R. § 20.1301(a)(1) "compels" an interpretation other than that given it by the NRC

In light of the NRC's determination that it need consider only the radioactive emissions from the operation seeking the license, we first consider whether "an alternative reading [of § 20.1301(a)(1)] is compelled by [that regulation's] plain language." *Thomas Jefferson Univ.*, 512 U.S. at 512 (quotation omitted). We conclude it is not.

Section 20.1301(a)(1) requires that "[t]he total effective dose equivalent to individual members of the public from the licensed operation does not exceed 0.1 rem (1mSv) in a year." (Emphasis added.) The clear language of this regulation supports the NRC's decision to focus only on the licensed operation. Thus, the NRC's determination is not a "plainly erroneous" interpretation of the regulation's language.

In reaching this conclusion, we reject Petitioners' argument that the NRC's simplistic reading of this phrase makes the remainder of the sentence at issue – requiring the TEDE calculation to be made "exclusive of the dose contributions from background radiation, from any medical administration the individual has received, from exposure to individuals administered radioactive material and released under [10 C.F.R.] § 35.75, from voluntary participation in medical research programs, and from the licensee's disposal of radioactive material into sanitary sewerage in accordance with [10 C.F.R.] § 20.3003" – irrelevant. The NRC asserts, however, that this language clarifies that the NRC's regulations specifically addressing sanitary sewers and medical administration of radiation continue to govern those other matters. This interpretation explains all but the regulation's exclusion of background radiation, and that exclusion makes sense in its own right.

The NRC also rejected Petitioners' contention that "licensed operations" should include a particular physical location that is under the operator's control:

> HRI's bare ownership of land containing radioactive mine spoil is not part of its NRC-licensed "operation." It did not bring the material to the surface. It is not required to have an NRC license to possess source material in the form of unprocessed ore (so long as it does not process that ore). Nothing in the record suggests that HRI plans to "process" the dust and rock that cover the surface of Section 17.

In re Hydro Res., Inc., 63 NRC at 516 (footnote omitted). The agency's interpretation of the regulation's language, in this regard, is also not "plainly erroneous"; that is, the language does not compel another construction. *See Thomas Jefferson Univ.*, 512 U.S. at 512.

Lastly, Petitioners argue that the NRC has historically interpreted this regulation to include both unlicensed and unregulated sources of radiation in its calculation of the TEDE, along with licensed sources of airborne radiation. The NRC agrees that that was true for a time, under different versions of this regulation. But the NRC revised § 20.1301 in 1991, changing language that included radiation from both licensed and unlicensed sources, *see* 10 C.F.R. § 20.1(b) (1979 ver.); *see also* 22 Fed. Reg. 548, 549 (Jan. 29, 1957); 44 Fed. Reg. 32,349, 32,352 (June 6, 1979), to the current language, referring only to "the licensed operation," 10 C.F.R. § 20.1301(a)(1), *see* 56 Fed. Reg. 23,391, 23,398 (May 21, 1991). With this revision, the NRC has now specifically linked the relevant measured dose to the "licensed operation." *See* 56 Fed. Reg. 23391, 23398 (May 21, 1991). At that same time, the NRC also reduced the maximum exposure to members of the public from 0.5 rem to 0.1 rem. *See In re TMI,* 67 F.3d at 1111 n.18.

b. Whether other indications of the NRC's intent at the time it promulgated these regulations contradict the NRC's current interpretation of § 20.1301(a)(1)

We must also consider whether indications of the agency's "intent at the time of the regulation's promulgation" contradict the NRC's interpretation of 10 C.F.R. § 20.1301(a)(1) at issue here. *Thomas Jefferson Univ.,* 512 U.S. at 512 (quotation omitted). The NRC's predecessor, the Atomic Energy Commission ("AEC"), first promulgated "regulations 'to establish standards for the protection of . . . licensees, their employees and the general public against radiation hazards'" in 1957. *In re TMI,* 67 F.3d at 1110 (quoting 25 Fed. Reg. 8595, 8595 (1960)). "The preface to the regulation explained, 'It is believed that the standards incorporated in these regulations provide, in accordance with present knowledge, a very substantial margin of safety for exposed individuals. It is believed also that the standards are practical from the standpoint of licensees.'" *Id.* (quoting 25 Fed. Reg. at 8595). These regulations, then, emphasized safety, of course, but also the development of nuclear energy when possible. And this is consistent with the policy established by the AEA in general to address "the development, use, and control of atomic energy."[10] 42

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[10] Congress stated its policy underlying the AEA as follows:

> Atomic energy is capable of application for peaceful as well as military purposes. It is therefore declared to be the policy of the United States that –
>
> (a) the development, use, and control of atomic energy shall be directed so as to make the maximum contribution to the general welfare, subject at all times to the paramount objective of making the maximum contribution to the common defense and security; and
>
> (b) the development, use, and control of atomic energy shall be directed so as to promote world peace, improve the general welfare, increase the standard of living, and strengthen free competition in private enterprise.

42 U.S.C. § 2011.

U.S.C. § 2011; *see also English v. Gen. Elec. Co.,* 496 U.S. 72, 80-81, 110 S. Ct. 2270, 110 L. Ed. 2d 65 (1990) (noting the Atomic Energy Act of 1954 "stemmed from Congress' belief that the national interest would be served if the Government encouraged the private sector to develop atomic energy for peaceful purposes under a program of federal regulation and licensing"). To effectuate this purpose, the AEA provides for "a program of conducting, assisting and fostering research and development in order to encourage maximum scientific and industrial progress" and "to encourage widespread participation in the development and utilization of atomic energy for peaceful purposes to the maximum extent consistent with the common defense and security and with the health and safety of the public." 42 U.S.C. § 2013(a), (d); *see Pac. Gas & Elec. Co. v. State Energy Res. Conservation & Dev. Comm'n,* 461 U.S. 190, 221, 103 S. Ct. 1713, 75 L. Ed. 2d 752 (1983) (noting that "a primary purpose of the [AEA] was, and continues to be, the promotion of nuclear power," and that the AEA's legislative history "confirm[s] that it was a major policy goal of the United States that the involvement of private industry would speed the further development of the peaceful uses of atomic energy") (quotations omitted).

"In 1960, the AEC substantially revised these regulations . . . [,] setting 0.5 rem as the maximum yearly radiation exposure allowed for the general public." *In re TMI,* 67 F.3d at 1111. These new regulations again emphasized the safe development of nuclear energy, "represent[ing] 'an appropriate regulatory basis for protection of the health and safety of employees and the public without imposing undue burdens upon licensed users of radioactive material.'"[11] *Id.* (quoting 25 Fed. Reg. at 8595).

In 1991, the NRC issued the regulation at issue in this case, 10 C.F.R. § 20.1301. *See In re TMI,* 67 F.3d at 1111 n.18. This new regulation "reduc[ed] the annual permissible exposure rate for the public to 0.1 rem per individual – down from the 0.5 rem standard that had existed for more than three decades." *Id.* This amendment was part of the NRC's effort to "amend [ ] federal regulations to incorporate updated scientific information and to reflect changes in the basic philosophy of radiation protection." *Good v. Fluor Daniel Corp.,* 222 F. Supp. 2d 1236, 1248 (E.D. Wash. 2002).

The NRC's construction of 10 C.F.R. § 20.1301(a)(1) in HRI's case is not contrary to any indication of the NRC's intent when it promulgated that regulation. We note, too, that the NRC's construction of 10 C.F.R. § 20.1301(a)(1)'s dose limit to apply only to the operation being licensed is also consistent with Congressional policy, expressed in the AEA, to develop and use atomic energy.[12]

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[11] The NRC again revised these regulations in 1964 and 1979. *See In re TMI,* 67 F.3d at 1111 & n.19.

[12] We further note, however, that the NRC's interpretation of § 20.1301(a)(1)'s dose limit for individual members of the

(Continued on following page)

c. Conclusion

For the foregoing reasons, we conclude that the NRC's interpretation of 10 C.F.R. § 20.1013(a)(1) to require the agency to consider only airborne radiation stemming from the licensed operation itself was not plainly erroneous or inconsistent with the regulation.[13]

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public would not preclude the NRC from denying a license application where the already existing airborne radiation presents a significant threat to the public safety and the licensed operation would substantially add to that radiation. That is because the AEA authorizes the NRC to "establish, by rule, minimum criteria for the issuance of specific or general licenses for the distribution of source material depending upon the degree of importance to the common defense and security or to the health and safety of the public. . . ." 42 U.S.C. § 2093(b) (emphasis added). Furthermore, 10 C.F.R. § 20.1301(f) provides that "[t]he Commission may impose additional restrictions on radiation levels in unrestricted areas," where the public might be exposed, "and on total quantity of radionuclides that a licensee may release in effluents in order to restrict the collective dose." Thus, the NRC could still deny a license or make a license more restrictive where a licensed operation would significantly increase the airborne radiation already being emitted. But that is not the case here. The parties do not dispute that HRI's licensed operation will add only negligibly to the airborne radiation being emitted on Section 17.

[13] In light of this conclusion, we need not consider the NRC's alternative conclusion that the airborne radiation being emitted from the prior mining operation is background radiation expressly excluded from the radiation dosage calculation called for under § 20.1301(a)(1).

B. National Environmental Policy Act

Petitioners assert that the manner in which the NRC considered the airborne radiation at the Church Rock Section 17 site also violated NEPA. "[NEPA] mandates that federal agencies . . . assess potential environmental consequences of a proposed action." *Utah Envtl. Cong. v. Russell,* 518 F.3d 817, 820-21 (10th Cir. 2008); *see also New Mexico ex rel. Richardson v. Bur. of Land Mgmt.,* 565 F.3d 683, 703 (10th Cir. 2009); *Citizens' Comm. to Save Our Canyons v. Krueger,* 513 F.3d 1169, 1177-78 (10th Cir. 2008) (noting "NEPA places upon federal agencies the obligation to consider every significant aspect of the environmental impact of a proposed action") (quotation omitted). NEPA further "ensures that an agency will inform the public that it has considered environmental concerns in its decision-making process." *Krueger,* 513 F.3d at 1177-78 (quotation omitted). "By focusing both agency and public attention on the environmental effects of proposed actions, NEPA facilitates informed decisionmaking by agencies and allows the political process to check those decisions." *New Mexico,* 565 F.3d at 703.

But "NEPA itself does not mandate particular results"; "[i]nstead [it] imposes only procedural requirements to ensure that the agency, in reaching its decision, will have available, and will carefully consider, detailed information concerning significant environmental impacts." *Winter v. Natural Res. Def. Council, Inc.,* 129 S. Ct. 365, 376, 172 L. Ed. 2d 249 (2008) (quotations omitted); *see also New Mexico,* 565

F.3d at 704; *Russell,* 518 F.3d at 821 ("NEPA dictates the process by which federal agencies must examine environmental impacts, but does not impose substantive limits on agency conduct."). Nor does NEPA "require agencies to elevate environmental concerns over other appropriate considerations." *Krueger,* 513 F.3d at 1178 (quotation omitted). Instead, NEPA "requires only that the agency take a 'hard look' at the environmental consequences before taking a major action. . . . The role of the courts in reviewing compliance with NEPA is simply to ensure that the agency has adequately considered and disclosed the environmental impact of its actions. . . ." *Id.* at 1178 (citations, quotations omitted); *see also New Mexico,* 565 F.3d at 704.

1. Standard of review

NEPA itself does not provide for a private right of action; therefore, this court reviews an agency's approval of a project, including the agency's compliance with NEPA, under the APA. *See Russell,* 518 F.3d at 823. In doing so, this court "will not set aside an agency decision unless it is 'arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.'" *Id.* (quoting 5 U.S.C. § 706(2)(A)); *see also New Mexico,* 565 F.3d at 704.

> An agency's decision is arbitrary and capricious if the agency entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or

> is so implausible that it could not be ascribed to a difference in view or the product of agency expertise. Furthermore, we must determine whether the disputed decision was based on consideration of the relevant factors and whether there has been a clear error of judgment.

Russell, 518 F.3d at 823-24 (quotation, citations, alterations omitted); *see also New Mexico,* 565 F.3d at 704. Again, our "deference to the agency is especially strong where the challenged decisions involve technical or scientific matters within the agency's area of expertise." *Russell,* 518 F.3d at 824 (quotation omitted). "A presumption of validity attaches to the agency action and the burden of proof rests with the [parties] who challenge such action." *Krueger,* 513 F.3d at 1176 (quotation omitted).

2. Analysis

Petitioners assert that the NRC's consideration of airborne radiation at Section 17 violated NEPA in two respects: 1) the NRC failed to consider the cumulative amount of airborne radiation that will be emitted from both the prior conventional mining operation and HRI's proposed ISL mining operation; and 2) the NRC mischaracterized the airborne radiation as "background radiation."

a. Whether the NRC erred in failing to consider the cumulative airborne radiation that will result from both the prior conventional mining activities and HRI's proposed ISL mining operation

In arguing that the NRC violated NEPA by failing to consider the cumulative impact of the airborne radiation at Section 17, Petitioners rely on 40 C.F.R. § 1508.7.[14] Under NEPA,

> [o]ur job is not to question the wisdom of the agency's ultimate decision or its conclusion concerning the magnitude of indirect impacts. Rather, our job is to examine the administrative record, as a whole, to determine whether the agency made a reasonable, good faith, objective presentation of those impacts sufficient to foster public participation and informed decision-making.

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[14] 40 C.F.R. § 1508.7 defines "cumulative impact" as

> the impact on the environment which results from the incremental impact of the action when added to past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

See also Wilderness Workshop v. U.S. Bur. of Land Mgmt., 531 F.3d 1220, 1228 n.8 (10th Cir. 2008); *Utah Envtl. Congress v. Richmond*, 483 F.3d 1127, 1133, 1139-40 (10th Cir. 2007). The NRC has also promulgated its own regulations for complying with NEPA, 10 C.F.R. Pt. 51.

Fuel Safe Washington v. FERC, 389 F.3d 1313, 1331 (10th Cir. 2004) (quotations, citations, alterations omitted); *see also Richmond,* 483 F.3d at 1140 (noting that "NEPA does not prohibit approval of projects with negative cumulative effects; it only requires that the [agency] consider and disclose such effects"). We conclude the NRC has met that standard here.

In addressing "airborne radiation," the NRC's FEIS noted that "[t]he primary radiological impact to the environment in the vicinity of the project results from naturally occurring cosmic and terrestrial radiation and naturally occurring radon-222 and its daughters." (Jt. App. at 276.) After further noting that "[t]he average whole-body dose rate to the population in this part of New Mexico," resulting from "local natural background radiation and . . . from medical procedures[,] . . . is estimated to be about 2.25 mSv/year," the FEIS went on to acknowledge that the "[r]adiological effects during project construction would include natural background plus remnant radiation stemming from previous mining and milling activities near the Church Rock site." (*Id.* at 276-77.)

The FEIS went on to discuss the possible airborne radiation that the ISL mining operations would create, and then considered

> the cumulative effect of the long history of mining in the area and the large exposures to radon (and other radioactive elements that form as radon decays) that occurred primarily to miners and resulted in a high

> incidence of cancer among them. [The FEIS] concludes that the proposed project would result in a negligible increase in existing impacts to the area due to mining and milling.
>
> The NRC staff is aware that to some members of the local community, any increase in the cumulative effect or in radioactivity, brought to the surface by any uranium mining activity, would be unacceptable. This perception is likely to be most prevalent among those whose health has been, or who have family members or friends whose health has been negatively affected by uranium mining activity.

(*Id.* at 284.)

The FEIS concluded that HRI's ISL mining would have "negligible" impact on the current airborne emissions levels:

> The proposed project would make a minor contribution to cumulative impacts in terms of health physics and radiological impacts. . . . The annual population dose was estimated for the period in time of greatest releases from all three project sites. Two population dose estimates were calculated: one for the Crownpoint/Unit I sites and one for the Church Rock site. As the area of impact is similar for both calculations, the results were combined with a total population dose less than .01 man-Sv/year. . . .
>
> Northwest New Mexico has a long history of uranium mining and milling. Effects of

previous mining and milling operations in the area are considered here as they relate to the proposed licensing action. The Church Rock facility as proposed would mine an area previously mined by underground mining to supply ore to the Church Rock mill site. . . . Early mines and mills operated under much less stringent standards than exist today, and this resulted in large exposures to radioactive materials, especially radon and its daughters. The exposures were large enough to result in a high incidence of cancer among workers, and information gathered on these workers resulted in development of risk factors on radon.

In addition, the methods used to mine and mill the uranium (i.e., "conventional" mining) resulted in very large amounts of radioactively and chemically contaminated sands and slimes, also known as tailings. In 1978, the U.S. Congress passed the Uranium Mill Tailing Radiation Control Act, which required standards to be developed to control exposure from tailings and clean up past sites of uranium milling. . . .

The proposed project would result in a negligible increase in cumulative impacts in the area due to uranium mining and milling. HRI has proposed an ISL process which, by its nature, does not result in large amounts of tailings or environmental releases of radioactive particulate material. Additionally, HRI has proposed to use a vacuum dryer, which reduces the total releases of radio-active

> particulates to nearly zero, and a pressurized process circuit with a feedback system to return radon to the mine zone, which reduces environmental radon releases. The expected exposures from the remaining possible sources of radon are a very small fraction of the allowable limits for exposure of the public. The amount of generated tailings is very small, in the tens of cubic meters per year, and would be disposed of at an off-site licensed facility. In addition, the facility and related well fields would be required to be decontaminated and decommissioned to the appropriate State and Federal standards.

(*Id.* at 289-90.)

It is clear, then, that the NRC did consider the cumulative effect of the airborne radiation from past mining as well as that expected from HRI's proposed ISL operations.[15] Petitioners, nevertheless, fault the

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[15] The FEIS also considered the cumulative impact of the past, present and future airborne radiation when it noted, in several places, that as a result of the NRC granting HRI a license, HRI will be required to clean up the Section 17 site, thus remedying the past contamination. For example, the FEIS noted that

> [t]he proposed project may result in a positive health effect at the Church Rock site. This effect would occur because some areas of the site have higher concentrations of residual activity (from previous mining activities) than would be allowed in decommissioning the site under the proposed action. Therefore, these areas may be cleaned up as part of the well field decontamination.

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FEIS for not quantifying the amount of airborne radiation already being emitted on Section 17 from the past mining debris. "But NEPA's 'hard look' does not necessarily always require the agency to develop 'hard data.'" *Krueger,* 513 F.3d at 1179 (citing *Ecology Ctr., Inc. v. U.S. Forest Serv.,* 451 F.3d 1183, 1190 (10th Cir. 2006)). In this administrative proceeding, the NRC was considering the environmental impact of granting HRI a mining license. And the NRC determined that those mining operations would have only a negligible effect on the amount of airborne radiation on Section 17. The agency's "hard look" at the airborne emissions HRI's operations are expected to produce, therefore, sufficed to meet the NRC's obligation under NEPA to consider the cumulative impact that granting HRI's license would have on airborne radiation. The NRC was not tasked here with specifically mitigating the contamination left from prior mining operations.[16] *Cf. Richmond,* 483 F.3d at 1140 (noting that NEPA requires only that the agency consider and disclose negative effects; it

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(Jt. App. at 284.) Although Petitioners disagree with this reasoning, the FEIS's discussion of this possibility nevertheless reinforces the fact that the FEIS did consider the cumulative impact of the past, present and future airborne radiation at Section 17.

[16] Because they raise the issue for the first time before this court in their reply brief, Petitioners have waived their argument that the FEIS improperly averaged airborne radiation readings. We, therefore, decline to address that issue. *See Silverton Snowmobile Club v. U.S. Forest Serv.,* 433 F.3d 772, 783-84 (10th Cir. 2006).

does not prohibit the agency's approval of programs with negative cumulative effects).

2. Whether the NRC erred in characterizing the airborne radiation emitted from the prior conventional mining operation as background radiation

Petitioners also argue that the FEIS, in addressing the effects of the past mining operations, erroneously treated the airborne radiation already being emitted from the debris as naturally occurring rather than as man-made background radiation. Even if it did so, the FEIS still adequately considered the cumulative impact from all of these sources of airborne radiation, regardless of how the NRC characterized that airborne radiation.

3. Conclusion

For the foregoing reasons, the NRC's consideration of the cumulative impact of airborne radiation at Section 17 amounted to the "hard look" NEPA required. We cannot say, therefore, that the NRC's decision to issue HRI a license was arbitrary, capricious, an abuse of discretion, or otherwise contrary to law.

III. GROUNDWATER CONTAMINATION AND RESTORATION AT SECTION 8

"Although . . . 'in situ' leach mining techniques are considered more environmentally benign [than] traditional mining and milling practices they still tend to contaminate the groundwater." (Jt. App. at 1394 (NRC publication "Consideration of Geochemical Issues in Groundwater Restoration at Uranium In-Situ Leach Mining Facilities").) In light of that, the license the NRC issued HRI requires HRI to restore the groundwater after it finishes mining each site. The license also requires HRI to maintain an adequate financial surety to guarantee that HRI or a third party, in HRI's absence, will be able financially to conduct this restoration. *See also* 10 C.F.R. §§ 40.1, 40.36, 40.42, App'x A, Criterion 9. Petitioners assert that the NRC, in crafting these license provisions, violated the AEA's mandate that the NRC not issue any license that, "in the opinion of the Commission," is "inimical to the common defense and security or the health and safety of the public." 42 U.S.C. § 2099; *see also* 10 C.F.R. § 40.32(d). Further, Petitioners contend that the FEIS violated NEPA because it failed to take the required "hard look" at the possible impact ISL mining might have on Section 8's groundwater quality, and particularly the impact on that groundwater quality should HRI be unable to meet the restoration goals set forth in the license.

A. Atomic Energy Act

As previously mentioned, the AEA mandates that the NRC not grant a license "if, in the opinion of the Commission, the issuance of a license to such person for such purpose would be inimical to the common defense and security or the health and safety of the public." 42 U.S.C. § 2099; *see also* 10 C.F.R. § 40.32(d). In order to implement that mandate, the NRC has promulgated regulations governing "the issuance of [these] licenses . . . and [to] establish and provide for the terms and conditions upon which the [NRC] will issue such licenses." 10 C.F.R. § 40.1(a); *see also id.* § 40.1(b). Among those regulations, Appendix A to 10 C.F.R. Pt. 40 sets forth criteria the NRC will consider in making licensing determinations for an ISL uranium mining operation.[17] *See In re Hydro Res., Inc.*, 49 N.R.C. 233, 235 (1999). At issue here, then, is whether the conditions the NRC imposed on the license it issued HRI, addressing the restoration of the quality of the groundwater at Section 8, remain true to the AEA's mandate.

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[17] According to HRI, the NRC promulgated Appendix A's criteria with only conventional uranium milling operations in mind. But a panel of the NRC's Atomic Safety and Licensing Board ("ASLB") concluded in this case that 10 C.F.R. Part 40 and its Appendix A also apply generally to ISL mining. *See In re Hydro Res., Inc.*, 49 N.R.C. at 235; *see also In re Hydro Res., Inc.*, 51 N.R.C. 227, 238 (2000). Nevertheless, some of Appendix A's criteria, because they are aimed at uranium milling, are not directly relevant to ISL mining. *See In re Hydro Res., Inc.*, 49 N.R.C. at 236. After the NRC issued HRI the license disputed in this case, the agency developed a Standard Review Plan specifically applicable to ISL recovery operations.

1. Standard of review

This court "will not set aside an agency's decision unless it is 'arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.'" *Russell,* 518 F.3d at 823 (quoting 5 U.S.C. § 706(2)(A)). Further, this court defers to the agency's reasonable interpretation of its own regulations and, thus, will "accept the agency's position unless it is plainly erroneous or inconsistent with the regulation." *Holowecki,* 552 U.S. at 397 (quotations omitted).

2. HRI's license[18]

a. Restoration of water quality

The problem the NRC faced in this case, regarding the restoration of the groundwater at Section 8, was this: NRC regulations require that HRI decommission the site, including restoring the quality of the groundwater. But no one had, as yet, fully restored the groundwater quality after an ISL mining operation.[19] Nonetheless, based upon results from pilot demonstrations and small-scale tests, the NRC became convinced that it was possible for HRI to restore the groundwater at a well site after it finished ISL mining.

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[18] HRI's license incorporated "all commitments, representations, and statements made in its licensing application," as well as the "Crownpoint Uranium Project Consolidated Operations Plan (COP) . . . except where superseded by license conditions contained in th[e] license." (Jt. App. at 314 (§ 9.3).) In addition, the license also included a later-developed "Restoration Action Plan." *See In re Hydro Res., Inc.,* 51 N.R.C. at 234, 238, 241-42.

HRI proposes to do so by

> flushing the aquifer with naturally occurring groundwater and decontaminated water to remove any remaining lixiviant and degraded groundwater. Affected water in each mine unit being restored would be withdrawn . . . , processed through [the] ion exchange to remove uranium, then treated to remove radium and total dissolved solids. This treated water, known as permeate, would then be reinjected to further flush the aquifer. Groundwater sweep and permeate injection would be balanced so that a cone of depression would be maintained, causing groundwater to flow toward the mining unit. Thus, natural groundwater would be drawn into the mining unit's center.

(Jt. App. at 244.) The number of times the aquifer will need to be flushed is measured by "pore volumes":

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[19] There is evidence in the record indicating that, after the NRC issued the FEIS in this case, groundwater quality was successfully restored at the Bison Basin mine following an ISL mining operation.

> A pore volume is an indirect measure of the volume of water that must be pumped or processed to restore the groundwater. It represents the water that fills the void space inside a certain volume of rock or sediment. Restoration costs are closely linked to the amount of water that must be processed to effect restoration. The pore volume parameter is used to represent how many times the contaminated volume of water in the rock must be displaced or processed to restore groundwater quality. It provides a means of comparing the level of effort required to restore groundwater regardless of the scale of the test. In general, the more pore volumes of water it takes to restore groundwater quality, the more money it will cost to achieve restoration.

(*Id.* at 258.)

In calculating the restoration efforts needed for HRI to restore the groundwater quality during its Crownpoint project, the NRC considered at length data HRI submitted from demonstrations and test results "conducted at other project locations."[20] (*Id.* at

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[20] HRI submitted to the NRC data from several studies and projects. The NRC first considered the results of HRI's own small core tests done in a laboratory using samples of rock removed from the ore zones at the sites HRI seeks to mine as part of its Crownpoint project. HRI conducted these tests in order to "demonstrate the restoration potential" of this area. (Jt. App. at 258-60.) Data from tests conducted on the core samples taken from the Church Rock site "show[ed] the restored values

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after 20 pore volumes [we]re circulated through the core," 16 if the pore volumes were run through at a faster pace; tests on the Crownpoint core took 28 pore volumes to reach "restored values." (*Id.* at 260; *see also id.* at 261-64.) While the NRC recognized that results from such small-scale studies can provide useful information, the agency had "significant concerns" about whether these small-scale test results accurately reflected an actual full-scale restoration process. (*Id.* at 258-60.)

Next, HRI submitted the results of "a single-well pilot solution mine test, conducted in the Westwater Canyon aquifer" – the aquifer where HRI proposes to conduct the ISL mining at issue here – "near the Church Rock site in June 1980 by United Nuclear Corporation and Teton Exploration Company." (*Id.* at 260.) This test "show[ed] the restored values after 3 pore volumes had been pumped from the aquifer." (*Id.*) Nevertheless, the data from this test indicated that not all of the individual parameters – chemicals or properties used to measure groundwater quality – were returned to baseline levels. While this test "was a larger-scale test than HRI's core restoration studies," the NRC was still concerned that the Teton

> test may not represent restoration of a full-scale well field because (1) considerable dilution from uncontaminated groundwater occurs during the clean-up phase; (2) one pore volume (at most) was leached, which is much less than in a commercial operation; (3) there was a relatively short contact time between the rock and lixiviant (5 days); and (4) fresh lixiviant was not continuously injected into the formation as would occur in an operating ISL mine.

(*Id.*)

HRI also submitted data from a 1979-80 pilot project, referred to as "Mobil Section 9 pilot," conducted by Mobil Oil Company at a location one mile from HRI's proposed Unit 1 mine site. (*Id.* at 266-67.) In that test, Mobil created an actual well field and injected lixiviant there for eleven months. This test "show[ed] restored water quality values after 16.7 pore volumes had been pumped from the aquifer." (*Id.*) But again not all of the individual parameters were restored to baseline levels.

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In particular, Mobil had trouble restoring the concentration of molybdenum and radium to pre-mining levels.

In addition to these test results, HRI also submitted "restoration demonstration data" from its production-scale facilities in Wyoming and New Mexico. (*Id.* at 266.) The NRC noted that it "regulates ISL mining in Wyoming and New Mexico," and that it had previously "approved the restoration of several test patterns [there] to explore the feasibility of ISL mining or demonstrate the feasibility of production-scale restoration." (*Id.*) But the "NRC has not yet approved the successful restoration of a production-scale well field at any of its licensed sites." (*Id.*)

The NRC went on to acknowledge that Texas had "approved groundwater restoration of production-scale ISL facilities," but that occurred "in groundwater of lower water quality than that on the New Mexico properties" at issue in HRI's license application. (*Id.*) For that reason, the NRC did "not consider the Texas data as representative for demonstrating restoration at the New Mexico sites." (*Id.*)

Lastly, the NRC noted the results of its own test, "conducted to investigate the ability of natural geochemical processes to restore water quality after ISL mining activities in an aquifer." (*Id.* at 268.) That test studied the migration of lixiviant "downgradient from a mined area into the area of an aquifer where reducing conditions occur naturally." (*Id.*)

> The study indicated that major ion concentrations elevated during ISL mining, such as sodium, chloride, and sulfate, are affected very little when the lixiviant migrates into the undisturbed reduced zone. As a result, concentrations tend to remain at the level to which the water was restored for some distance from the area of former mining. Conversely, redox- (oxidation/reduction) sensitive ions such as uranium, arsenic, selenium, and molybdenum precipitate from solution if the restored water moves into a reducing zone. Therefore, after restoration activities, if groundwater moves into a reducing area, concentrations of these ions should rapidly decrease in the groundwater

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258.) The NRC concluded from this data that "all the parameters" used by the license to measure groundwater quality "can eventually be restored to water use standards." (*Id.* at 269.) The NRC, however, also concluded that, notwithstanding these demonstration and test results and because "water quality in aquifers containing uranium deposits may be highly variable[,] . . . groundwater restoration criteria for specific mining projects should be set taking into account site-specific conditions and spatial variation." (*Id.* at 268.) Further, "[r]estoration criteria should be based on a statistical analysis of groundwater chemistry data from a large set of wells sampled over a period of time." (*Id.*)

In light of these conclusions, the NRC, in crafting the terms of HRI's license addressing restoration of ground water quality at Section 8, did two things. First, the NRC determined that HRI's restoration efforts would be measured using thirty-five specified "parameters," or chemical elements or properties.[21]

(*Id.*) "This study also indicated that water quality in aquifers containing uranium deposits may be highly variable." (*Id.*)

[21] HRI's license specifically provides:

> In establishing restoration goals, the following parameters shall be measured: alkalinity, ammonium, arsenic, barium, bicarbonate, boron, cadmium, calcium, carbonate, chloride, chromium, copper, fluoride, electrical conductivity, iron, lead, magnesium, manganese, mercury, molybdenum, nickel, nitrate, pH, potassium, combined radium-226 and radium-228, selenium, sodium, silver, sulfate, total dissolved solids,

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"HRI [is] required to use baseline [pre-mining] conditions as the primary restoration target for all constituents" or parameters. (*Id.* at 244.) The parties do not challenge this means by which the license measures HRI's restoration efforts.

> Lixiviant shall not be injected into a well field before groundwater quality data is collected and analyzed to establish groundwater restoration goals for each monitored aquifer of the well field, as follows:
>
> > A) The licensee shall establish groundwater restoration goals by analyzing three independently-collected groundwater samples of formation water from: (1) each monitor well in the well field; and (2) a minimum of one production/injection well per acre of well field. Samples shall be collected a minimum of 14 days apart from each other. Groundwater restoration goals shall be established on a parameter-by-parameter basis, with the primary restoration goal to return all parameters to average pre-lixiviant injection conditions. If groundwater quality parameters cannot be returned to average pre-lixiviant injection levels, the secondary goal shall be to return groundwater quality to the maximum concentration

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uranium, vanadium, zinc, gross Beta, and gross Alpha (excluding radon, uranium, and radium).

(Jt. App. at 320.)

> limits specified in the U.S. Environmental Protection Agency (EPA) secondary and primary drinking water regulations. The secondary restoration goal for barium and fluoride[, however,] shall be set to the State of New Mexico primary drinking water standard. The secondary restoration goal for uranium shall be 0.44 mg/L (300 pCi/L).[22]

(*Id.* at 320 (§ 10.21) (footnote added).)[23] The FEIS explained that meeting the secondary goals will suffice if "water quality parameters cannot be returned to average pre-mining baseline levels through reasonable restoration efforts." (*Id.* at 244.) And, although HRI's license does not state this, the FEIS suggests that if HRI "found that it were impracticable to restore to primary or secondary goals, it might request a license amendment that would allow some change in restoration requirements on a parameter-by-parameter basis." (*Id.* at 256.) The FEIS indicates, however, that

> [i]f a groundwater parameter could not be restored to its secondary goal, HRI would have to make a demonstration to NRC that leaving the parameter at the higher concentration would not be a threat to public health

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[22] The parties later agreed to reduce this amount to 0.03 mg/L. *See In re Hydro Res., Inc.*, 62 N.R.C. 77, 92 & n.7 (2005).

[23] "These goals are consistent with the NRC Staff Technical Position Paper *Groundwater Monitoring at Uranium In Situ Solution Mines* (NRC 1981b)." (Jt. App at 256.)

> and safety and that, on a parameter by parameter basis, water use would not be significantly degraded.

(*Id.*)

The NRC was particularly concerned about restoring the "total dissolved solids," or "TDS," parameter:

> TDS is a measure of the total sum of all dissolved constituents, but it is most affected by the major constituents (sulfate, chloride, calcium, bicarbonate, carbonate, fluoride, sodium, and potassium). However, not all major constituents have a secondary or primary drinking water standard (for example, bicarbonate, carbonate, calcium, magnesium, potassium). Consequently, it is possible that after groundwater restoration, the TDS secondary goal might be achieved, but the secondary goal for individual major ions that contribute to TDS might not be achieved. If such a situation occurred, HRI would have to make a demonstration to NRC that leaving a parameter at higher than secondary goal concentrations would not be a threat to public health and safety and that water use would not be significantly degraded. For groundwater with TDS concentrations less than the secondary goal, NRC staff ha[s] assumed that worst-case groundwater restoration would return water quality to the secondary goal, even though it cannot be achieved without leaving some of the major parameters at higher than background concentrations

> (i.e., between primary and secondary goal concentrations).

(*Id.* at 256-58.)

The second thing the NRC did in drafting the terms of HRI's license was to employ a graduated approach to groundwater restoration at Section 8 and as to the Crownpoint project as a whole. Because "water quality in aquifers containing uranium deposits may be highly variable" and, thus, "groundwater restoration criteria for specific mining projects should be set taking into account site-specific conditions" (*id.* at 268), the license requires HRI, when it begins mining at Section 8, to conduct a demonstration of its restoration methods. HRI must set aside a well field in Section 8, perform ISL mining there "for at least three months under commercial activity conditions," and then restore the groundwater quality in this test field "to levels consistent with baseline." (*Id.* at 311.) HRI will then be able to use this demonstration to calculate the pore values needed generally to restore the groundwater throughout the project to baseline. "Authorization for expansion of mining into additional areas will be contingent upon the results of the restoration demonstration." (*Id.*)

b. Surety to guarantee the financial ability to conduct restoration efforts

In order to facilitate the restoration of a mine site after the operator has finished mining it, the NRC's regulations further require that the mine operator provide a surety in order to insure that the licensee will have the economic wherewithal to "decommission" the ISL mine site. 10 C.F.R. Pt. 40, App. A, Criterion 9. The NRC will review the amount of the required surety annually and can adjust the surety requirements as necessary "to recognize increases or decreases resulting from inflation, changes in engineering plans, activities performed, and any other conditions affecting cost." *Id.*

In addressing this required surety arrangement, HRI's license mandates that the "ground water restoration of the initial well fields shall be based on nine pore volumes" (*id.* at 312):

> Surety for groundwater restoration of the initial well fields shall be based on 9 pore-volumes. Surety shall be maintained at this level until the number of pore volumes required to restore the groundwater quality of a production-scale well field has been established by the restoration demonstration described in [the license's section] 10.28. If at any time it is found that well field restoration requires greater pore-volumes or higher restoration costs, the value of the surety will be adjusted upwards. Upon NRC approval, the licensee shall maintain the NRC-approved financial surety arrangement consistent with 10 CFR Part 40, Appendix A, Criterion 9.

> Annual updates to the surety amount, required by 10 CFR Part 40, Appendix A, Criterion 9, shall be provided to the NRC at least 3 months prior to the anniversary date of the license issuance. If the NRC has not approved a proposed revision 30 days prior to the expiration date of the existing surety arrangement, the licensee shall extend the existing arrangement, prior to expiration, for 1 year. Along with each proposed revision or annual update of the surety the licensee shall submit supporting documentation showing a breakdown of the costs and the basis for the cost estimates with adjustments for inflation (i.e., using the approved Urban Consumer Price Index), maintenance of a minimum 15 percent contingency, changes in engineering plans, activities performed, and any other conditions affecting estimated costs for site closure.

(*Id.* at 315.)

3. Petitioners' challenges to the license's terms governing the restoration of groundwater at Section 8

Petitioners assert that the NRC violated the AEA, in two ways, when it issued HRI a license to conduct ISL mining at Section 8.

a. The license the NRC issued HRI is inimical to the public's health and safety because the nine pore volumes required by the license to restore the ground water at Section 8, and the surety based upon that nine-pore-volume restoration, are inadequate

Petitioners contend that the NRC acted arbitrarily and capriciously in basing HRI's license and the required surety on a nine-pore-volume restoration effort. More specifically, Petitioners contend that the nine pore volumes will be inadequate to insure the public health and safety, as the AEA requires.

In choosing nine pore volumes, the NRC rejected HRI's original proposal that a four-pore-value restoration effort would be sufficient to restore the groundwater quality. The NRC chose nine pore volumes based on the agency's detailed analysis of the test and demonstration results HRI submitted, *see supra* n.20. Summarizing those results, the NRC concluded:

> Depending on the parameter and the test chosen, the pore volumes required to achieve the lower water quality of the secondary restoration goal or background ranged from less than 1 pore volume to greater than 28 pore volumes. However, plots of TDS concentrations and specific conductivity values (an indirect measure of TDS) show little improvement with continued pumping after 8 to 10 pore volumes. The Mobil Section 9 pilot

> is the largest restoration demonstration conducted in the project area to date. During groundwater restoration activities in the Mobil demonstration, TDS concentrations were close to the secondary goal of 500 mg/L after 6.9 and 9.7 pore volumes. On the basis of the data submitted by HRI, the [NRC] staff conclude[s] that practical production-scale groundwater restoration activities would at most require a 9 pore volume restoration effort. Accordingly the staff ha[s] calculated groundwater impacts assuming the use of 9 [pore] volumes for groundwater restoration. Furthermore, surety should be maintained at this level until the number of pore volumes required to restore the groundwater quality of a production-scale well field has been demonstrated.

(Jt. App. at 269.)

"In order for a factual determination to survive review under the arbitrary and capricious standard, an agency must examine the relevant data and articulate a rational connection between the facts found and the decision made." *New Mexico,* 565 F.3d at 713 (quotation, alterations omitted); *see also Russell,* 518 F.3d at 831. There is evidence in the administrative record supporting the NRC's determination that it is a reasonable estimate that HRI will be able to restore groundwater quality in Section 8 using nine pore volumes. For instance, the test results detailed in the FEIS suggest restoration of the groundwater quality is eventually possible. And in some of those tests, water quality was restored with fewer than nine pore volumes.

In addition, based upon those test results, the NRC's hydrologist, William Ford, indicated that it is "extremely likely that after *in situ* leach mining is completed, the groundwater quality will be restored to acceptable levels so that the water use of the aquifer is maintained." (Jt. App. at 484.) Ford further asserted that, while the Mobil Section 9 demonstration indicated that "it is unlikely that groundwater restoration activities at the Church Rock site will achieve baseline concentrations for all groundwater parameters," at "the 9-10 pore volume range," "it is likely that most, if not all, of the groundwater parameters will achieve the secondary groundwater restoration goals stated in HRI's License Condition 10.21." (*Id.*)

While Ford noted that "[a]pproximately 74% of the parameters monitored in the Mobil demonstration met the secondary groundwater restoration goals after 9-10 pore volumes of restoration effort" (*id.* at 484-85), he went on to explain why several of the parameters that the Mobil Section 9 demonstration could not restore should not present a problem for HRI's restoration efforts. According to Ford, two of the six parameters that Mobil could not restore – calcium and sodium – do not have primary or secondary drinking water standards because they are not hazardous to humans. And another – molybdenum – "is primarily a concern for cattle uptake." (*Id.* at 485.) Ford concluded that, in the Mobil Section 9 restoration demonstration, "[a]t 9.7 pore volumes, total dissolved solids (TDS) concentrations were at 587 parts per million (ppm), which was close to the secondary drinking water standard for dissolved solids of 500 mg/L." (*Id.*) Ford, therefore, concluded that "it is very likely that the TDS secondary goal will be achieved at Section 8, even though it cannot be accomplished without leaving some of the major parameters which are not a threat to public health and safety at higher than background concentrations." (*Id.*) In addition, Ford noted that, although the Mobil test did not restore arsenic after 9 pore volumes, it "was very close to" and "was for all practical purposes at the primary drinking water standard." (*Id.* at 485-86.) Finally, Ford acknowledged that the Mobil Section 9 demonstration was not able to restore uranium and radium levels after nine pore volumes. But after 9.7 pore volumes, "uranium was nearly in compliance with the NRC standard, and radium concentrations were restored to anticipated baseline conditions." (*Id.* at 486.) Moreover, Ford opined that "parameters like arsenic, radium, molybdenum, and uranium are readily retarded by rock water interactions," and "[t]herefore, it is extremely unlikely that after restoration activities, arsenic, radium, molybdenum, or uranium levels would impact water quality outside the restored well field areas." (*Id.*)

The NRC's Atomic Safety and Licensing Board found Ford's explanation persuasive. *See In re Hydro Res., Inc.,* 50 N.R.C. 77, 102-06 (Aug. 20, 1999). We cannot conclude here that that determination was arbitrary or capricious. *See New Mexico,* 565 F.3d at 713. Nor do we find any evidence in the administrative record to support Petitioners' assertion that the NRC based its adoption of the nine-pore-volume restoration effort on economic reasons and "HRI's financial well-being." (Pet. Br. at 47 n. 32.)

The NRC, then, considered in detail HRI's ability to restore the groundwater at Section 8 to its prelixiviant levels. And in drafting HRI's license, the NRC took a reasoned approach by requiring HRI to attempt to restore the groundwater at Section 8 before beginning ISL recovery operations at any of the other three sites. In light of that, we must uphold the NRC's licensing decision in this respect as not arbitrary or capricious, an abuse of discretion or contrary to law. *See Utah Shared Access Alliance v. Carpenter,* 463 F.3d 1125, 1134 (10th Cir. 2006) (noting that for an agency decision to survive arbitrary-and-capricious review, the agency must have "examined the relevant data and articulated a rational connection between the facts found and the decision made," and "there must be a reasoned basis for the agency's action").

For the same reasons, we reject Petitioners' related contention that the NRC failed to require HRI to post an adequate surety for its groundwater restoration efforts. Petitioners contend that the actual pore volumes necessary to restore the groundwater at Section 8 could be much greater than the nine pore volumes on which the surety is currently based. But the regulations, as well as HRI's license, call for a surety based upon the "estimated" restoration costs. (Jt. App. at 315.) And, as just explained, the NRC has made a reasoned and informed determination of the needed restoration efforts. Further, based upon the relevant regulations, *see* 10 C.F.R. Part 40, Appendix A, Criterion 9, the license provides for an annual review of the surety and a mechanism by which that surety can be changed.

b. The license the NRC issued HRI is inimical to the public's health and safety because it allows HRI to remedy any deficiency in the surety funding at the time the site is decommissioned

Petitioners also argue that the NRC shirked its responsibility to set restoration goals and the surety in an amount adequate to insure the operator can restore the groundwater by simply relying on the fact that the surety can be increased later, during the NRC's annual reviews of the surety amount. As previously explained, however, the NRC did not shirk its responsibility. While the NRC regulations do provide for an annual review of the surety and the possibility that the surety will need to be adjusted, *see* 10 C.F.R. Part 40, Appendix A, Criterion 9, the NRC made a definitive and reasoned selection of nine pore volumes at the outset of this project as the estimated necessary restoration effort that HRI must fund. The graduated nature of the project the NRC approved, however, represents a reasoned way to address the unknowns at play in this case.

4. Whether the NRC denied Petitioners the right to an administrative hearing on HRI's ability to restore the water quality in the other three mining sites

The AEA provides that, "[i]n any proceeding under this chapter, for the granting, suspending, revoking, or amending of any license . . . the Commission shall grant a hearing upon the request of any person whose interest may be affected by the proceeding." 42 U.S.C. § 2239(a)(1)(A). Petitioners requested such a hearing, and the NRC conducted one. Petitioners do not challenge the adequacy of that hearing. Instead, they complain that there will be a number of determinations about HRI's project that will be made in the future, and yet Petitioners will not at that time have the opportunity for another hearing on those issues. For example, the exact groundwater restoration standards cannot be determined until HRI drills its wells in Section 8. And restoration and surety requirements for the other three mining sites will not be determined until HRI initially demonstrates its ability to restore the groundwater at Section 8.

The NRC determined, however, that Petitioners

> had a fair opportunity to challenge the 9 pore volume estimate for Section 8, which was based upon the available information to date.

> The fact that data from the restoration demonstration project will be reviewed for confirmation of the 9 pore volume estimate does not obviate the fact that a meaningful hearing has been provided for the adjudication of the 9 pore volume estimate.

In re Hydro Res., Inc., 60 N.R.C. 581, 593 (2004). That determination was not arbitrary, capricious, an abuse of discretion or otherwise unlawful. The NRC conducted a hearing, after which it definitively determined that at this time a nine-pore-volume restoration effort would be necessary.

The NRC further noted that, if HRI or the NRC requested to amend the license and/or HRI's surety, Petitioners will, at that time, have an opportunity to request another hearing. *See* 42 U.S.C. § 2239(a)(1)(A) ("In any proceeding under this chapter, for the granting, revoking, or *amending* of any license . . . the Commission shall grant a hearing upon the request of any person whose interest may be affected by the proceeding.") (emphasis added). If, on the other hand, the NRC decides it does not need to amend HRI's license and/or surety, Petitioners themselves can petition to amend HRI's license. *See* 10 C.F.R. § 2.206(a) (stating that "[a]ny person may file a request to institute a proceeding pursuant to § 2.202 to modify, suspend, or revoke a license, or for any other action as may be proper"). *See generally Fla. Power & Light Co. v. Lorion,* 470 U.S. 729, 731, 105 S. Ct. 1598, 84 L. Ed. 2d 643 (1985).

Petitioners argue that it is unlikely that the relevant NRC Director will exercise its discretion, *see Ohio ex rel. Celebrezze v. NRC,* 868 F.2d 810, 814-15 (6th Cir. 1989), to grant them a hearing under § 2.206. *See Eddleman v. NRC,* 825 F.2d 46, 48 (4th Cir. 1987) (noting there is no right to a hearing under 10 C.F.R. § 2.206). But they are entitled to request a hearing. And if an NRC Director wrongly denies them a hearing, although there is no further administrative review available, *see* 10 C.F.R. § 2.206(c)(2), Petitioners may be able to seek judicial review of that determination. *See Lorion,* 470 U.S. at 740-41, 746; *see also Kelley v. Selin,* 42 F.3d 1501, 1515 (6th Cir. 1995) (citing *Bellotti v. United States Nuclear Regulatory Comm'n,* 725 F.2d 1380, 1383, 233 U.S. App. D.C. 274 (D.C. Cir. 1983)) (noting NRC may not deny arbitrarily a petition seeking a hearing under 10 C.F.R. § 2.206); *Massachusetts v. United States Nuclear Regulatory Comm'n,* 878 F.2d 1516, 1522, 1525 (1st Cir. 1989) (reviewing to determine whether agency "inexcusably default[ed] on its fundamental responsibility to protect the public safety"). *But see Riverkeeper, Inc. v. Collins,* 359 F.3d 156, 164 (2d Cir. 2004) (holding that NRC's denial of § 2.206(a) petition for a hearing was not reviewable because it was left to the agency's total and unreviewable discretion); *Nuclear Info. Res. Serv. v. Nuclear Regulatory Comm'n,* 969 F.2d 1169, 1178, 297 U.S. App. D.C. 169 (D.C. Cir. 1992) (noting the same); *Arnow v. United States Nuclear Regulatory Comm'n,* 868 F.2d 223, 235-36 (7th Cir. 1989) (same).

For these reasons, the NRC does not appear to have deprived Petitioners of their right to a hearing.

B. Whether the NRC violated NEPA by failing to consider adequately the impact HRI's mining might have if HRI is unable to restore the groundwater quality at Section 8

Petitioners contend that the NRC violated NEPA by not properly considering the cumulative environmental impacts on Section 8 that might result if HRI is unable to restore the groundwater quality.[24] As previously mentioned, NEPA requires the NRC to consider the potential consequences of its proposed action by taking a "hard look" at those consequences. *See Russell,* 518 F.3d at 820-21; *Krueger,* 513 F.3d at 1179. This court "will not set aside an agency decision unless it is 'arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.'" *Russell,* 518 F.3d at 823 (quoting 5 U.S.C. § 706(2)(A)).

The FEIS, in fact, does address the possibility that HRI will be unable to restore fully the groundwater at Section 8.

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[24] The NRC argues that Petitioners failed to preserve this issue before the agency. We need not address this waiver argument because, in any event, the NRC has complied with NEPA.

> The potential groundwater impacts of ISL mining are related to the consumption of groundwater (i.e., water is pumped from the aquifer but not returned to it) and short- and long-term changes to groundwater quality (i.e., the chemistry of the water). Perhaps the most significant environmental impact that can occur as a result of ISL mining is the degradation of water quality in the ore-bearing aquifer.

(Jt. App. at 254.) Further, the FEIS recognized that "[l]ocal groundwater quality in the Westwater Canyon sandstone within the proposed mining units would deteriorate during HRI's proposed project." (*Id.*) In particular, during mining, "the concentrations of most of the naturally occurring dissolved constituents will be appreciably higher than their concentrations in the original groundwater." (*Id.*) "The total volume of groundwater that would be chemically affected by ISL mining is estimated to be 3.3 million m<3> (2671 acre-ft.)." (*Id.* at 287.)

In addition, the FEIS recognized the dangers posed by possible excursions – "unanticipated releases of mining solutions that move beyond the 'well field area'" – occurring during the mining process. (*Id.* at 254.) Specifically, the FEIS noted that "significant adverse effects to groundwater quality would result if an excursion (either horizontal or vertical) occurs or if, after routine mining, water quality is not restored." (*Id.* at 280.)

Not only did the FEIS recognize these possibilities, the FEIS expressly explored ways in which the groundwater contamination could be contained and eventually remediated.

> To preserve the community's use of the Westwater Canyon aquifer as a drinking water source, NRC staff would require several mitigation measures of HRI. . . . Generally, the measures include additional characterization, testing, and bonding above that proposed by HRI, for groundwater restoration. A groundwater restoration demonstration would be required at Church Rock before lixiviant could be injected at Unit 1 or Crownpoint.

(*Id.*) The FEIS discussed monitoring the groundwater contamination during ISL mining, as well as the methods and timing of HRI's efforts to restore the groundwater quality after its mining operations cease. And the FEIS addressed the primary and secondary restoration goals which were eventually included in HRI's license. Further, the FEIS noted that, if HRI could not meet even the secondary restoration goals required of it, HRI "would have to make a demonstration to NRC that leaving the parameter at a higher concentration would not be a threat to public health and safety and that, on a parameter by parameter basis, water would not be significantly degraded." (*Id.* at 256.)

In addressing all of these issues, the FEIS acknowledged that "[s]uccessful restoration of a production-scale ISL well field has not previously occurred. Further, site-specific tests conducted by HRI have not demonstrated that the proposed restoration standards can be achieved at a production scale."[25] (*Id.* at 280.) Nevertheless, the FEIS ultimately determined that HRI would be able eventually to meet the required restoration goals. It did so based upon a detailed analysis of the test results from this and other projects offered by HRI, discussed above.[26]

For these reasons, we conclude that the NRC took the "hard look" NEPA requires regarding groundwater restoration at Section 8. *See Krueger,* 513 F.3d at 1178 (quotation omitted); *cf. Richmond,* 483 F.3d at 1140 (noting NEPA does not prohibit agency from approving project with negative cumulative effects, so long as agency considered those effects). Therefore, we cannot say that the NRC's decision to issue HRI's license was arbitrary, capricious, an abuse of discretion or otherwise contrary to law.

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[25] There is evidence in the record that "after the FEIS was published[,] . . . groundwater was successfully restored by the State of Wyoming at the Bison Basin ISL mine site." (Jt. App. at 477 n.7.)

[26] On review, Petitioners fault the NRC for rejecting Petitioners' NEPA claim pertaining to the groundwater restoration at Section 8. In particular, Petitioners complain that NRC summarily upheld the NRC's compliance with NEPA because the agency had already rejected their arguments that HRI's license, as it addressed groundwater restoration, violated AEA. Most of Petitioners' arguments challenging HRI's ability to restore groundwater, however, are the same, under both the AEA and NEPA. And the NRC addressed those at length.

IV. Conclusion

For all of the foregoing reasons, we DENY the petition for review and uphold the NRC's licensing decision in all respects.

DISSENT BY: LUCERO

DISSENT

LUCERO, J., dissenting:

Because the majority's decision in this case will unnecessarily and unjustifiably compromise the health and safety of the people who currently live within and immediately downwind from Section 17, I must respectfully dissent. For thirty years, the United Nuclear Corporation ("UNC") mined Section 17. When it abandoned the mine, it failed to undertake a basic responsibility: cleaning up after itself. UNC left behind mining spoil that continuously emits gamma radiation and radon. Now, the Nuclear Regulatory Commission ("NRC") has granted a license to Hydro Resources, Inc. ("HRI") to mine the same property. HRI plans to mine the site, which will result in total radiation levels nine to fifteen times the permitted regulatory limit.

Petitioners in this case include members of three families that live within or near Section 17 and Eastern Navajo Dine Against Uranium Mining, a Navajo community organization representing members who reside primarily in Church Rock and Crownpoint, New Mexico. These petitioners should be able to rely on the NRC to properly interpret statutes and agency regulations designed to protect the public's health and safety. Instead, the NRC has abandoned its statutory commitment to refrain from issuing licenses if doing so "would be inimical to . . . the health and safety of the public," 42 U.S.C. § 2099, and has rendered this community vulnerable to the ill effects of dangerous radiation.

My respected colleagues compound the NRC's error by failing to adequately review the agency's action. The NRC issued HRI's license at Section 17 using an interpretation of 10 C.F.R. 1 § 20.1301(a)(1) that is inconsistent with the text of the regulation. We should therefore set aside the NRC's decision and remand to the agency for decisionmaking consistent with the proper interpretation of the rule – an interpretation that is true to the regulation and that adequately protects the interests of the public and the petitioners in this case. Because the majority's decision compounds past injustice by committing legal error, I respectfully dissent.

I

In affirming the NRC's grant of a mining license to HRI, the majority erroneously concludes that we should defer to the NRC's interpretation of § 20.1301(a)(1). (Majority Op. 14.) The majority notes that when we review an agency's interpretation of its own regulations under the Administrative Procedure Act ("APA"), 5 U.S.C. § 551 *et seq.*, we must give the agency's interpretation "controlling weight unless it is plainly erroneous or inconsistent with the regulation." (Majority Op. 9) (quoting *Udall v. Tallman,* 380 U.S. 1, 16-17, 85 S. Ct. 792, 13 L. Ed. 2d 616 (1965)). In this case, the NRC's interpretation of § 20.1301(a)(1) is "inconsistent with the regulation" and thus warrants no deference. *Thomas Jefferson Univ. v. Shalala,* 512 U.S. 504, 512, 114 S. Ct. 2381, 129 L. Ed. 2d 405 (1994).

Section 20.1301(a)(1) requires that a licensee conduct operations such that:

> [t]he total effective dose equivalent to individual members of the public from the licensed operation does not exceed 0.1 rem (1 mSv) in a year, exclusive of the dose contributions from background radiation, from any medical administration the individual has received, from exposure to individuals administered radioactive material and released under § 35.75, from voluntary participation in medical research programs, and from the licensee's disposal of radioactive material into sanitary sewerage in accordance with § 20.2003.

1 § 20.1301(a)(1).

In granting the license in this case, the NRC interpreted the cap on the total effective dose equivalent ("TEDE") from the "licensed operation" to limit only the radiation "directly linked to licensed activity." *In re Hydro Res., Inc.*, 63 N.R.C. 510, 516 (2006). The majority concludes that this interpretation is not "plainly erroneous" because "[t]he 1 [sic] clear language of this regulation supports the NRC's decision to focus only on the licensed operation." (Majority Op. 14.) This conclusion, however, seems merely to beg the question: the meaning of the phrase "licensed operation" as used in § 20.1301(a)(1).

The NRC's interpretation of "licensed operation" is inconsistent with the regulation because it renders superfluous the exclusion of "background radiation" and radiation from other specified sources in § 20.1003. It is a well-established principle of statutory and regulatory interpretation that a provision should be read such that no term is rendered nugatory. *See Time Warner Ent. Co., L.P. v. Everest Midwest Licensee, L.L.C.*, 381 F.3d 1039, 1050 (10th Cir. 2004) ("As with statutory construction, in interpreting regulations; 6937; 6937, [sic] we strive to construe the text so that all of its provisions are given effect and no part is rendered superfluous."). The NRC interprets "licensed operation" to refer only to the licensee's activity. However, § 20.1301(a) expressly excludes from the radiation limit on a "licensed operation" any "background radiation," along with radiation from any "medical administration the individual has received, from exposure to individuals administered radioactive material . . . , from voluntary participation in medical research programs, and from the licensee's disposal of radioactive material into sanitary sewerage."

By focusing only on the licensee's activities, the NRC's interpretation of "licensed operation" renders these specific exclusions unnecessary: There is no reason to expressly exclude radiation from medical research programs if "licensed operation," by definition, refers only to activity of the licensee. The majority apparently accepts the NRC's explanation that not every licensee is a mining company and "this language clarifies that the NRC's regulations specifically addressing sanitary sewers and medical administration of radiation continue to govern those other matters." (Majority Op. 15.)

The regulation does no such thing. It does not refer to these other sets of regulations or state that they apply notwithstanding § 20.1301(a). Moreover, the NRC itself has admitted the superfluity of the relevant language under its interpretation:

> [S]imply interpreting the phrase 'from the licensed operation' as limiting the scope of TEDE arguably renders unnecessary other provisions in the TEDE rule expressly excluding doses resulting from medical administration and disposal of radioactive material in sanitary sewerage.

In re Hydro Res., 63 NRC at 516.

Because the NRC's asserted interpretation of § 20.1301(a)(1) violates a fundamental rule of construction, and because the NRC granted HRI a license in derogation of its duty to protect public health and safety, I would reject its definition of "licensed operation."

II

Although the majority does not reach the issue, I would also hold that radioactive emissions from existing mining spoil at Section 17 should not be excluded from the TEDE limit as "background radiation." Section 20.1301(a) excludes radiation doses due to "background radiation" from the limit on TEDE. The regulations define "background radiation" to include "naturally occurring radioactive material" ("NORM"). § 20.1003. Moreover, neither the Atomic Energy Act nor NRC regulations define NORM. The NRC concluded that NORM includes "technologically enhanced naturally occurring radioactive material" ("TENORM"), or "radioactive materials that, as a result of human activities, are no longer in their natural state," *In re Hydro Res., Inc.*, 63 N.R.C. 41, 67 (2006), including mining spoil. *In re Hydro Res., Inc.*, 63 N.R.C. at 518 (2006).

The NRC's interpretation of the regulation is yet again unreasonable. When a term is not defined by the relevant statute or regulation, we interpret it using its "ordinary, contemporary, common meaning." *Perrin v. United States,* 444 U.S. 37, 42, 100 S. Ct. 311, 62 L. Ed. 2d 199 (1979) (citation omitted). "Naturally" means "according to or by the operation of the laws of nature." *Webster's 3d New Int'l Dictionary*

1507 (1993). Thus, "naturally occurring radioactive material" is radioactive material that occurs according to or by the operation of the laws of nature. It does not include radioactive materials that are no longer in their natural state as a result of human activities.

The NRC asserts that that "technical terms of art should be interpreted by reference to the trade or industry to which they apply." Although an accurate statement of the law, *see La. Pub. Serv. Comm'n v. FCC,* 476 U.S. 355, 372, 106 S. Ct. 1890, 90 L. Ed. 2d 369 (1986), this argument is unavailing. The NRC failed to provide any authority – even one of its own past decisions – indicating that NORM is, in fact, a technical term of art with the meaning it now asserts. In contrast, petitioners cite a number of authorities indicating that TENORM was not understood to be a subset of NORM when the latest version of NRC rules was promulgated in 1991. "Background radiation" does not include radiation caused by existing mining spoil at Section 17 and thus should not be considered radiation from a licensed operation.

III

Because the NRC granted HRI's license using interpretations of its regulations that are inconsistent with the regulations themselves, I would set aside its decision and remand for the agency to reconsider its licensure of HRI. Petitioners have submitted substantial evidence indicating that the total TEDE at

Section 17 already exceeds the 0.1 rem permitted by § 20.1301. Further, they have presented evidence that HRI's mining will ultimately produce radiation many times the permitted limit. Using the correct interpretation of § 20.1301, the NRC would likely revoke HRI's license.

Families currently live within and just downwind from Section 17. The NRC's erroneous decision and the majority's endorsement of that decision will expose these families to levels of radiation beyond those deemed safe by the NRC's own regulations, jeopardizing their health and safety. Accordingly, I dissent.

CLI-06-29

Cite as 64 N.R.C. 417 (2006)

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:
Dale E. Klein, Chairman
Edward McGaffigan, Jr.
Jeffrey S. Merrifield
Gregory B. Jaczko
Peter B. Lyons

IN THE MATTER OF HYDRO RESOURCES, INC.	No. 40-8968-ML
(P.O. Box 777, Crownpoint, New Mexico 87313)	December 14, 2006

MEMORANDUM AND ORDER

In this decision, we consider a petition for review filed jointly by Intervenors Eastern Navajo Diné Against Uranium Mining ("ENDAUM"), Southwest Research and Information Center ("SRIC"), Grace Sam, and Marilyn Morris. Intervenors seek review of LBP-06-19, the Presiding Officer's Final Partial Initial Decision in this lengthy materials license proceeding. The Presiding Officer's decision addresses the adequacy of the Final Environmental Impact Statement's ("FEIS") analysis for the Hydro Resources Inc. ("HRI") Crownpoint Uranium Solution Mining Project. The decision focuses on the FEIS insofar as it relates to the Church Rock Section 17, Unit 1, and Crownpoint sites[1] HRI and the NRC Staff oppose Intervenors' petition for review. The Commission carefully has considered the Intervenors' petition, but finds that it does not identify any "clearly erroneous" factual finding, significant legal error, or any other reason warranting plenary review.[2] For the reasons outlined below, we deny the petition.

I. FEIS SUPPLEMENT

The Intervenors argue that the NRC must supplement the FEIS to address a "change in the legal status of HRI's proposed mining project."[3] Specifically, they state that the Diné Natural Resources Protection Act ("DNRPA"), passed by the Navajo Nation Council in 2005, "definitively prohibits uranium mining or processing within Navajo Indian Country," and that Section 17, Unit 1, and part of the Crownpoint site are "Indian Country."[4] They therefore claim that "HRI is prohibited by law from mining on at least two of its four proposed sites," and that an FEIS supplement is necessary because the DNRPA is a "significant change in the legal requirements affecting the HRI mine."[5] According to Intervenors, by rejecting their argument on the need for an EIS supplement, the Presiding Officer violated 10 C.F.R. § 51.71(d).[6]

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[1] The HRI license, issued by the NRC in 1998, authorizes HRI to conduct *in situ* leach uranium mining at four sites in McKinley County, New Mexico: Church Rock Section 8, Church Rock Section 17, Unit 1, and Crownpoint. Earlier decisions by the Presiding Officer and Commission rejected Intervenor arguments on the adequacy of the FEIS analysis as it relates to the Church Rock Section 8 site. *See* LBP-99-30, 50 NRC 77 (1999), *affd,* CLI-01-4, 53 NRC 31 (2001). The first portion of this proceeding ("Phase I") focused on Church Rock Section 8. Issues specific to the other three mining sites – Church Rock Section 17, Unit 1, and Crownpoint – have been litigated in this second portion ("Phase II") of the proceeding.

[2] *See* 10 C.F.R. § 2.786(b)(4) (2004). The NRC has amended its adjudicatory procedural rules in 10 C.F.R. Part 2. *See* Final Rule: *"Changes to Adjudicatory Process,"* 69 Fed. Reg. 2182 (Jan. 14, 2004). For cases docketed prior to February 13, 2004 (such as this case), the previous procedural rules, including the former 10 C.F.R. § 2.786, continue to apply. A substantially equivalent new rule now appears in 10 C.F.R. § 2.341(b)(4).

[3] Intervenors' Petition for Review of LBP-06-19 (Sept. 11, 2006) ("Petition") at 3.

But as the Commission explained earlier in this proceeding, not all new information that might emerge following issuance of an environmental impact statement requires a supplement to the impacts analysis. The new information must present a "'seriously different picture of the environmental impact of the proposed project from what was previously envisioned.'"[7] Here, the Presiding Officer found that the Intervenors "fail[ed] to provide evidence or argument to suggest that the DNRPA calls into question any of the environmental conclusions in the FEIS."[8] Concluding that there was no "indication that the DNRPA will result in a significantly new potential impact not considered in the FEIS," the Presiding Officer rejected the Intervenors' argument on the need for an FEIS supplement.[9]

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[4] *Id.*

[5] *Id.*

[6] Intervenors' petition does not explain their reference to section 51.71 (d), an NRC regulation on the contents of a draft environmental impact statement. We assume they mean to reference the provision's statement that "[d]ue consideration will be given to compliance with . . . requirements that have been imposed by Federal, State, regional, and local agencies having responsibility for environmental protection. . . ." The regulation emphasizes that "irrespective" of any such requirements, the NRC will consider the environmental impacts of the proposed action.

The Presiding Officer did note that HRI must comply with all applicable legal requirements, including obtaining any necessary underground injection control permit and aquifer exemption. He therefore stated that resolution of "whether the sites on which HRI proposes to conduct NRC-licensed mining operations are in 'Indian Country'. . . . may affect HRI's ability to mine," just as whether HRI can obtain necessary permits or exemptions would affect its ability to mine[10] Pursuant to license condition, HRI must "obtain all necessary permits and licenses from the appropriate regulatory authorities" prior to injecting lixiviant.[11]

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[7] *Hydro Resources, Inc.* (P.O. Box 15910, Rio Rancho, NM 87174), CLI-04-39, 60 NRC 657, 659 (2004) (quoting *Sierra Club v. Froehlke*, 816 F.2d 205, 210 (5th Cir. 1987)).

[8] LBP-06-19, 64 NRC 53, 104 (2006).

[9] *Id.*

[10] *Id.* at 104 n.40.

[11] *See* License Condition 9.14.

To the extent that the DNRPA presents another "legal requirement [] affecting the HRI mine," the Presiding Officer's decision itself effectively supplements the FEIS, thereby updating the FEIS description of the Navajo Nation's position on uranium mining activities and making clear the DNRPA's enactment and HRI's need "to ensure its operations do not run afoul" of the DNRPA.[12] However, it is beyond the NRC's authority or the scope of this proceeding to resolve jurisdictional questions that ultimately may determine whether HRI is able to proceed with the uranium mining project. While the NRC recognizes the tribal sovereignty of the Navajo Nation, it is not the function of the EIS process to resolve existing or potential jurisdictional disputes.[13]

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[12] LBP-06-19, 64 NRC at 104 n.40 (quoting LPP-06-1, 63 NRC 41, 71 n.29 (2006)). At the time the FEIS was issued, there was an ongoing moratorium on uranium mining activity on Navajo lands. The Navajo Nation issued the moratorium in 1983, and renewed it by tribal executive order in 1992. *See* NUREG-1508, "Final Environmental Impact Statement to Construct and Operate the Crownpoint Uranium Solution Mining Project, Crownpoint, New Mexico" (February 1997) ("FEIS") at 3-87. The FEIS nonetheless noted that many individuals ("allottees") had agreed to lease their land to HRI, and that a conflict existed between the Navajo Nation moratorium on uranium mining and the "individuals' decisions about their land." *Id.* at 4-120. In light of unresolved conflicts over applicability of the moratorium to allotted lands, the FEIS describes that the NRC chose to proceed "with the EIS process and with a Safety Evaluation Report" to determine the potential impacts of HRI's proposed project and alternatives. *Id.*; *see also id.* at A-54.

[13] *See, e.g.*, FEIS at 4-114 to 4-115 (regarding "competing jurisdictional claims" over "which sovereign – the Navajo Nation

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The FEIS notes expressly that resolution of which proposed project areas are Indian Country and related jurisdictional questions "may ultimately be determined through litigation" outside of the EIS process.[14] Simply put, if HRI cannot satisfy applicable Federal, State, and Navajo Nation requirements, it cannot go forward with the project.

Ultimately, at issue is whether the DNRPA significantly alters the FEIS's findings on environmental impacts. In their petition for review, Intervenors simply call "the effects of the DNRPA on the FEIS . . . major and obvious,"[15] and then go on to suggest that because of the DNRPA, the FEIS requires a new cost-benefit analysis, a new analysis of project "alternatives," and a new analysis of the environmental effects of liquid waste disposal)[16]

As a threshold matter, we note that these arguments were not part of the Intervenors' original NEPA presentation to the Presiding Officer, and are therefore impermissibly late).[17] The Commission

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or the State of New Mexico – can administer the utilization of water rights"; *see also, e.g., id.* at 1-5 ("there are disputes over the jurisdictional status of some of the project area, and similar conflicts may arise regarding other project areas"), 4-115, A-54 to A-55.

[14] *See id.* at 4-101; *see also id.* at 5-4, A-54 to A-56.

[15] Petition at 3 n.3.

[16] *Id.*

[17] *See* Intervenors ENDAUM's, SRIC's, Grace Sam's and Marilyn Morris's Written Presentation in Opposition to HRI's

(Continued on following page)

deems waived arguments or legal theories not raised before a Presiding Officer or Licensing Board,[18] or only introduced in a reply filing which opposing parties did not have the opportunity to address.[19] In any event, Intervenors' broad-brushed calls for "revisit[ing]" or "reevaluat[ing]" the FEIS cost-benefit analysis, analysis of alternatives, and liquid waste disposal analysis do not indicate how the DNRPA significantly alters the FEIS's findings and conclusions.

Intervenors' petition for review suggests that the HRI project is "effectively halved" because "at least two of [HRI's] proposed sites"[20] are Indian Country

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Application for a Materials License with Respect to NEPA Issues for Church Rock Section 17, Unit 1, and Crownpoint (June 24, 2005) at 50-51.

[18] *See Hydro Resources, Inc.* (P.O. Box 15910, Rio Rancho, NM 87174), CLI-04-33, 60 NRC 581, 592 (2004).

[19] *See Louisiana Energy Services, L.P.* (National Enrichment Facility), CLI-04-25, 60 NRC 223, 225 (2004) ("[i]n Commission practice, and in litigation practice generally, new arguments may not be raised for the first time in a reply brief"). In replying to the NRC Staff and HRI, Intervenors introduced a claim that the FEIS cost-benefit analysis requires revision because the Navajo Nation would not receive tax or other benefits from the HRI project. *See* "Reply to HRI's and the NRC Staff's Responses in Opposition to Intervenors' Written Presentation with Respect to NEPA Issues for Church Rock Section 17, Unit 1, and Crownpoint" (Aug. 19, 2005) at 21. Intervenors' arguments on a need for new analyses of alternatives and liquid waste disposal impacts appear to be entirely new claims raised on appeal before the Commission.

[20] *See* Petition at 3.

and cannot be mined under the DNRPA. Thus, they claim that the cost-benefit analysis must be redone. But Intervenors have had the opportunity to litigate the adequacy of the FEIS's analysis of potential environmental impacts at all four proposed sites: Church Rock Section 8, Church Rock Section 17, Unit 1, and Crownpoint. In the event that HRI proceeds with a much smaller project with two fewer sites, the estimated environmental impacts from mining at the two eliminated sites would not occur. Potential project benefits (e.g., amount of domestically produced uranium to offset imports, new local jobs, and new additional county and state tax revenues) also would be reduced correspondingly.[21] It is not apparent, however, why the overall conclusions of the cost-benefit analysis would significantly change, and the Intervenors do not suggest how they would.[22] Of

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[21] *See, e.g.*, FEIS at 5-1 to 5-7 (cost-benefit analysis), 4-97 to 4-105 (socioeconomic impacts).

[22] *See, e.g.*, LBP-06-19, 64 NRC at 92 (summarizing general cost-benefit conclusions). Nor do we find persuasive Intervenors' new claims that the DNRPA requires additional FEIS analysis of project "alternatives" and of liquid waste disposal options. The FEIS provides an extensive analysis of alternatives and their potential impacts, examining a variety of alternative sites for mining (including the options of only mining at one or two of the proposed sites), alternative sites for yellowcake drying and packaging, and various liquid waste disposal options. *See, e.g.*, FEIS at 2-31, 4-13, 4-58, 4-60, 4-65, 4-80 to 4-81, 4-83, 4-86 to 4-88, 4-94, 4-110 to 4-111. In light of these comprehensive analyses, the Intervenors fail to identify what other "range of alternatives" must be considered. An agency need not "undertake a 'separate analysis of alternatives which are not signifi-

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course, if in the end HRI cannot proceed or chooses not to proceed with the proposed project because of the DNRPA, there would be *no* project impacts or benefits at all. Such a result would be equivalent to the "no action" alternative discussed in the FEIS.

II. CUMULATIVE IMPACTS TO AIR QUALITY AND TO GROUNDWATER RESOURCES

Cumulative impacts are "the impact on the environment which results from *the incremental impact* of the [proposed] action, when added to other past, present, and reasonably foreseeable future actions."[23] Thus, a cumulative impacts analysis will consider whether the incremental impacts from an action will combine with preexisting environmental impacts in a "fashion that will enhance the significance of their individual effects."[24] Intervenors argue that the Presiding Officer erred when he found adequate the FEIS's cumulative impacts analyses for radiological air impacts and groundwater impacts.

The Presiding Officer's cumulative impacts findings rest heavily upon his analysis of technical

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cantly distinguishable from alternatives [already] considered, or which have substantially similar consequences.'" *Westlands Water District v. United States Department of the Interior*, 376 F.3d 853, 871-72 (9th Cir. 2004), *quoting Headwaters, Inc. v. Bureau of Land Management*, 914 F.2d 1174 (9th Cir. 1990).

[23] 40 C.F.R. § 1508.7 (emphasis added).

[24] *Hydro Resources, Inc.* (P.O. Box 15910, Rio Rancho, NM 87174), CLI-01-4, 53 NRC 31, 57 (2001).

and fact-intensive arguments presented by the parties. On such fact-specific technical issues, where a Presiding Officer has reviewed an "extensive record in detail, with the assistance of a technical advisor," the Commission is disinclined to upset the Presiding Officer's findings and conclusions, particularly where the submissions of experts have been weighed.[25] While the Commission on occasion may choose to make its own *de novo* findings of fact, we generally do not exercise that authority where a Presiding Officer or Licensing Board has issued "'a plausible decision that rests on carefully rendered findings of fact.'"[26] Intervenors' petition does not identify any clear error or other reason warranting review of the Presiding Officer's findings on cumulative air impacts or cumulative groundwater impacts, and we therefore decline to review them. Below we provide additional brief comment on the Intervenors' claims.

A. Cumulative Air Impacts

Intervenors argue that the FEIS evaluates only the expected "incremental" airborne radiological emissions expected from the HRI project, but not the

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[25] *Hydro Resources, Inc.* (P.O. Box 777, Crownpoint, New Mexico 87313), CLI-06-1, 63 NRC 1, 2 (2006), *quoting Hydro Resources, Inc.* (P.O. Box 15910, Rio Rancho, NM 87174), CLI-00-12, 52 NRC 1, 3 (2000).

[26] *HRI* CLI-06-1, 63 NRC at 2, *quoting Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-03-8, 58 NRC 11, 25-26 (2003).

"*combined* impacts of airborne radiological emissions from HRI's operation and residues of past mining."[27] The Presiding Officer rejected this argument, explaining that the incremental increase in radiological air impacts due to the HRI project is so "de minimis" or "negligible" that it would not significantly enhance already existing environmental effects from background airborne radiation.[28] Intervenors provide us with no reason to question that conclusion. As we stated in Phase I of this proceeding regarding expected environmental impacts at Church Rock Section 8, "Intervenors understandably . . . focus upon the adverse effects of former mining, but they have not explained why [an] additional, and expected to be negligible, radiation impact . . . would have any public health and safety significance."[29]

Intervenors also argue that the FEIS inappropriately averaged background radiation levels for Church Rock and Crownpoint, when Church Rock has significantly higher radiation levels. But the Presiding Officer acknowledged "the existence of discrete sources of higher background radiation in Church Rock."[30] Indeed, he noted that background doses as high as 1000 mrem/year are not unusual in the

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[27] Petition at 5 (emphasis added).

[28] *See* LBP-06-19, 64 NRC at 71-72, 74, 80.

[29] CLI-01-4, 53 NRC at 69.

[30] LBP-06-19, 64 NRC at 70; *see also id.* at 70-71.

United States.[31] He concluded, however, that the actual "typical background radiation level for the general public at Church Rock is *closer* to the 225 mrem/year estimated in the FEIS, rather than the 1000 mrem/year alleged by the Intervenors."[32] Intervenors' petition does not suggest otherwise.

B. Cumulative Groundwater Impacts

Intervenors argue that the FEIS fails to take a hard look at the potential for groundwater contaminants to migrate from HRI's proposed mine. Their particular concern is the presence of underground mine workings (from a previous underground mining operation) located in the southern end of the Church Rock site, and the potential for these mine workings to form preferential pathways for lixiviant (mining solutions) to move away from the well field. Such pathways could lead to "excursions," which are "unanticipated releases of mining solutions that move beyond the well field area."[33]

Specifically, Intervenors argue that the Presiding Officer erred by "accepting the FEIS's unexplained and unjustified failure to model the acknowledged potential for excursions in the old mine workings."[34] They claim that by finding the FEIS discussion of the mine workings adequate, the Presiding Officer "violated" 10 C.F.R. § 51.71, an NRC regulation which calls for environmental impacts to be quantified to the "fullest extent practicable."[35] They further claim that the Presiding Officer "lacked any rational basis" for assuming that HRI is capable of correcting an excursion if one were detected.[36]

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[31] *See id.* at 70; *see also* LBP-06-1, 63 NRC at 61 n.16 (Phase II Radiological Air Emissions Challenges), *aff'd*, CLI-06-14, 63 NRC 510 (2006).

[32] LBP-06-19, 64 NRC at 71 (emphasis added).

[33] FEIS at 4-15 (internal quotation omitted).

The FEIS discusses the potential for horizontal and vertical excursions during HRI's proposed mining operations extensively, particularly focusing on the underground mine workings in Church Rock.[37] Contrary to Intervenors' claims, we see no indication that the Presiding Officer relied upon "unexplained and unjustified" discussion in the FEIS, or that he lacked any reasonable basis for concluding that the FEIS provides adequate consideration of the old mine workings and the potential risks they pose to groundwater impacts.[38]

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[34] Petition at 7.

[35] *Id.* (quoting 10 C.F.R. §51.71).

[36] *Id.*

[37] *See* FEIS at 4-54 to 4-56.

[38] *See* LBP-06-19, 64 NRC at 76-78. We find unpersuasive Intervenors' claim that the Presiding Officer lacked "any rational basis" to assume that an excursion can be corrected. In addressing potential vertical excursions, the FEIS states that it "should be possible" to mine in the Westwater Canyon aquifer

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Referencing the FEIS, the Presiding Officer notes that there are established methods in *in situ* leach mining for detecting and correcting horizontal and vertical excursions, that HRI has a sensitive excursion monitoring program, and that HRI would employ premining testing and particular drilling methods to minimize the risk of excursions.[39] In the event of an excursion, HRI must follow procedures mandated by license condition, including notifying the NRC by telephone within 24 hours.[40] If HRI cannot correct an excursion within 60 days, it must either terminate injection of lixiviant within the well field until aquifer cleanup is complete, or increase its surety amount to cover the full third-party cost of correcting and cleaning up the excursion.[41]

In short, the record amply supports the Presiding Officer's finding that the FEIS "adequately considers

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without creating a vertical excursion, but notes that HRI has not actually "specifically demonstrated" how it would accomplish this. *See* FEIS at 4-56. Therefore, the FEIS does not exclude the possibility that there could be a vertical excursion. That HRI has not provided a specific "demonstration" of how it would mine in the Westwater Canyon without creating an excursion, however, does not by itself suggest that HRI would be incapable of correcting an excursion if one were detected.

[39] *See* LBP-06-19, 64 NRC at 77; *see also* FEIS at 4-16 to 4-17.

[40] *See* License Condition 12.1; *see also* FEIS at 4-21 to 4-22.

[41] *See* License Condition 10.13; *see also* FEIS at 4-21 to 4-22.

the cumulative impact of HRI's proposed ISL mining operation on groundwater contamination vis *a vis* the old mine workings."[42] Intervenors have not shown the Presiding Officer's fact-based findings to be unreasonable.[43]

III. MITIGATION MEASURES FOR THE CROWNPOINT MUNICIPAL WATER WELLS

The FEIS identifies potentially significant groundwater impacts associated with HRI's proposed mining at the Crownpoint site.[44] Under a conservative analysis, the NRC Staff found a potential risk that the local water supply at Crownpoint could be contaminated by excessive amounts of uranium. Therefore, the Staff has imposed a license condition requiring HRI to move the town of Crownpoint's existing water supply wells and water delivery system prior to injecting any lixiviant at Crownpoint.[45]

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[42] LBP-06-19, 64 NRC at 78.

[43] Intervenors' arguments on the underground mine workings are not entirely clear. In one part of their argument they apparently challenge the Presiding Officer's discussion of potential horizontal excursions, *see* Petition at 7 (quoting the Presiding Officer's discussion of horizontal excursions at LBP-06-19, slip op. at 23 [64 NRC at 77]), but then in another part of the argument go on to quote parts of the Presiding Officer's decision and FEIS that specifically address vertical excursions. *See id.* (quoting LBP-06-19, slip op. at 24 [64 NRC at 78] and FEIS at 4-56). Regardless, their petition does not present any clear error or other reason for revisiting the Presiding Officer's fact-based evaluation of groundwater impacts.

[44] *See* FEIS at 4-48 to 4-49, 4-113, 4-122 to 4-123, 5-7.

Specifically, HRI's license requires it to replace the town of Crownpoint's water supply wells, construct the necessary water pipeline, and provide funds so that the existing water supply systems of the Navajo Tribal Utility Authority ("NTUA") and the Bureau of Indian Affairs ("BIA") can be connected to the new wells. The license further requires that "[a]ny new wells, pumps, pipelines, and other changes to the existing water supply systems . . . shall be made such that the systems can continue to provide at least the same quantity of water as the existing systems."[46] Moreover, water quality at each individual well head must "not exceed the EPA's primary and secondary drinking water standards."[47] To determine "the appropriate placement of the new wells," HRI must "coordinate with the appropriate agencies and regulatory authorities," including the BIA, the

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[45] *See* License Condition 10.27; *see also* FEIS at 4-62, A-1 to A-2.

[46] License Condition 10.27(A).

[47] *Id.* Placement of new water wells and implementing details relating to the requirement that the new water supply systems provide "at least the same quantity of water as the existing systems" would implicate the jurisdiction of other agencies and regulatory authorities as indicated in License Condition 10.27. For example, local authorities may confront issues, such as planned water usage or population growth issues, relating to the sustainable yield of a different aquifer if one were chosen for a new water supply.

NTUA, the Navajo Nation Department of Water Development and Water Resources, and the Navajo Nation Environmental Protection Agency.[48]

The Presiding Officer found that the FEIS adequately addresses mitigation measures for replacing the Crownpoint water supply wells.[49] Intervenors challenge this ruling, arguing that the mitigation measures are "insufficiently discuss[ed]" and must be supported by "scientific studies and substantial evidence."[50] In particular, they claim that while the replacement wells must provide the same quantity of water as existing wells and must meet specific drinking water standards, "this mitigation measure is not supported by any data as to whether there are other locations in or near Crownpoint that might meet these criteria, which regulatory agency, if any, will be responsible for well relocation or oversight of well relocation, whether existing water infrastructure or new infrastructure will be needed and whether building such infrastructure is even feasible."[51]

Intervenors, however, demand a level of detail not required by NEPA. The purpose of addressing possible mitigation measures in an FEIS is to ensure that the agency has taken a "hard look" at the potential environmental impacts of a proposed action.[52] An EIS therefore must address mitigation measures "in sufficient detail to ensure that environmental consequences have been fairly evaluated."[53] An EIS need not, however, contain "a complete mitigation plan,"[54] or "a detailed explanation of specific measures which will be employed."[55] Indeed, a mitigation plan "'need not be legally enforceable, funded or even in final form to comply with NEPA's procedural requirements.'"[56] As long as the potential adverse impacts from a proposed action have been adequately disclosed, it is not improper for an EIS to describe "mitigating measures in general terms and rel[y] on general processes. . . ."[57]

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[48] *Id.; see also* FEIS at 4-113.

[49] LBP-06-19, 64 NRC at 93-95.

[50] Petition at 8.

[51] *Id.*

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[52] *Westlands Water Dist.*, 376 F.3d at 872, *citing Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 352 (1989).

[53] *Robertson*, 490 U.S. at 352.

[54] *Id.*

[55] *Id.* at 353.

[56] *Okanogan Highlands Alliance v. Williams*, 236 F.3d 468, 473 (9th Cir. 2000), *quoting National Parks & Conservation Ass'n v. United States Department of Transportation*, 222 F.3d 677, 681 n.4 (9th Cir. 2000). We find unpersuasive Intervenors' argument that mitigation measures set forth in an EIS must be "supported by scientific studies." *See* Petition at 8. The case cited by Intervenors for that proposition did not involve an EIS, but instead mitigation measures relied upon to avoid the need to prepare an EIS. *See Wyoming Outdoor Council v. Corps of Engineers*, 351 F. Supp. 2d 1232, 1250 (D. Wy. 2005).

[57] *Northern Alaska Environmental Center v. Kempthorne*, 457 F.3d 969, 979 (9th Cir. 2006). Moreover, HRI will need to coordinate the placement of the new water wells with various specified authorities. Consequently, numerous details that will bear on potential well placement are simply not yet known, and

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At bottom, Intervenors fear that HRI may be unable to meet the "criteria" specified in the license condition. But if HRI cannot meet the specified water quantity and quality and related requirements for the replacement water supply wells, it will *not* be able to begin mining at Crownpoint. In short, the mitigation measures set forth specific goals that are a *condition* that HRI must meet prior to injecting lixiviant at Crownpoint.

IV. LAND USE IMPACTS AND MITIGATION MEASURES

Intervenors argue that the Presiding Officer erred when he found adequate the FEIS discussion of potential land use impacts. They claim that the Presiding Officer ignored evidence they presented on the impacts that HRI's mining project would have on the Navajo people who live and work in Church Rock Section 17, and that by "failing to examine the environmental impacts of HRI's operation on the specific locale of Section 17, the Presiding Officer violated 40 C.F.R. § 1508.27."[58] They also argue that the

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may not be known until HRI has been able to survey potential locations for replacement wells.

[58] Again, the Intervenors cite to a regulation without identifying their precise argument. Section 1508.27 sets forth the Council on Environmental Quality's definition of the word "significantly" as used in the NEPA process to describe the significance of environmental impacts. It provides that the significance of an action must be analyzed in several contexts, including the "locality." *See* 40 C.F.R. § 1508.27.

Presiding Officer ignored their evidence showing that the mitigation measures for land use impacts are inadequate.

We find no indication that the Presiding Officer failed to address or "ignored" evidence that the Intervenors presented. Instead, he rejected their claims, agreeing instead with HRI and the NRC Staff in concluding that the FEIS adequately discusses the land use impacts. To be sure, HRI's proposed mining project necessarily would cause adverse land use impacts at all of the proposed mining sites.[59] These include temporarily disrupting livestock grazing, which "'would adversely affect Navajo who have grazing permits for the land and rely on livestock as an important economic resource.'"[60] The mining activities also would force the relocation of particular individuals or families that are Navajo "allottees" (owners of surface and mineral rights) or their tenants. But as the FEIS notes, the allottees were "voluntary signatories" to leases negotiated by HRI. They were informed as a condition of the leases that there would be a need for relocation and access restrictions during HRI's mining. Among those forced to relocate, however, there may be individuals who were not actual signatories to a lease, but are living on allotted lands (e.g., as tenants).

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[59] *See* FEIS at 92-96.

[60] LBP-06-19, 64 NRC at 82 (quoting FEIS at 4-94). The FEIS notes that under the Federal General Mining Law of 1872, "mineral rights owners [HRI has secured mineral leases] can disrupt surface grazing permits in order to remove minerals." *See* FEIS at 4-94.

To help mitigate land use impacts, HRI is to compensate those individuals who hold livestock grazing permits that would be interrupted:

> HRI should compensate these permittees directly (for private lands) or indirectly through the relevant tribal [authority] (for tribal lands) or Federal agency (BIA for allottee lands). Staff recommend that the Navajo Nation negotiate compensation arrangements for lands where grazing permits are held in tribal trust, and that BIA negotiate compensation arrangements for lands where allottees have grazing permits.[61]

In addition, HRI is to provide direct compensation to any residents of allotted lands who were not signatories to leases, but are forced to relocate during project construction and operation.[62]

These are measures "to help mitigate"[63] impacts that understandably would bring hardship to the individuals affected. The FEIS does not purport to claim that the mitigation measures would relieve all difficulty. Intervenors claim that the Presiding Officer "violated NEPA by accepting the adequacy of monetary compensation and relocation as mitigation measures."[64] Intervenors believe that "monetary compensation does not suffice," and that it is unacceptable for any potentially affected individuals to have to relocate.[65] Whether there is *any* mitigation measure that they would find adequate is not apparent because they do not suggest one. But NEPA does not guarantee that federally approved projects will have no adverse impacts at all. Nor does it require an agency to select the most environmentally benign alternative. While the HRI FEIS might have said more about those who may be affected by HRI's project, the Presiding Officer found that it sufficiently discusses potential impacts and mitigation measures. Intervenors provide us with no reason to revisit that conclusion.[66]

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[61] FEIS at 4-95.

[62] *Id.*

[63] *Id.*

V. CONCLUSION

For the reasons given in this decision, we *deny* the Intervenors' petition for review of LBP-06-19.

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[64] Petition at 9.

[65] *See id.* at 9-10.

[66] Intervenors also claim the FEIS is inadequate because it does not specifically address "the logistical matters" involved with the relocations, including "how tribal' members unwilling to be relocated will be treated." *See* Petition at 8. But as we stressed previously, *see supra* pp. 426-27, mitigation measures need not include a complete plan with all details. The FEIS stresses that "it would not be possible to determine how many individuals or families might have to be relocated until well drilling began." *See* FEIS at 4-94.

IT IS SO ORDERED.

For the Commission

ANNETTE L. VIETTI-COOK
Secretary of the Commission

CLI-06-14

Cite as 63 N.R.C. 510 (2006)

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:
Nils J. Diaz, Chairman
Edward McGaffigan, Jr.
Jeffrey S. Merrifield
Gregory B. Jaczko

IN THE MATTER OF
HYDRO RESOURCES, INC.
(P.O. Box 777,
Crownpoint, New Mexico 87313)

No. 40-8968-ML
May 16, 2006

MEMORANDUM AND ORDER

Intervenors Eastern Navajo Diné Against Uranium Mining and Southwest Research and Information Center (together, "Intervenors") have petitioned for review of LBP-06-1, the Presiding Officer's January 6, 2006, Partial Initial Decision (Phase II Radiological Air Emission Challenges to In Situ Leach Uranium Mining License).[1] The Presiding Officer found that radiological air emission from Hydro Resources, Inc.'s (HRI's) proposed *in situ* leach mining facility in Church Rock, New Mexico, would not exceed the NRC dose limits.[2] Intervenors claim that the Presiding Officer erroneously discounted, as "background radiation," existing radiation from mining spoil left at the site by previous owners.

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[1] LBP-06-1, 63 NRC 41 (2006).

[2] *Id.* at 52-71.

We granted review so that we could resolve the "background radiation" issue definitively.[3] Today we decide, as the Presiding Officer held, that radioactive residue from previous mining activity amounts to "background radiation" and does not count toward the 0.1-rem dose limit applicable to new *in situ* facility licenses.[4]

I. BACKGROUND

A. Regulation of Uranium Mining

The NRC does not regulate conventional uranium mining. The Atomic Energy Act requires an NRC license to transfer or receive in interstate commerce any source material (such as uranium ore) only "after removal from its place of deposit in nature."[5] This agency has traditionally viewed this provision as precluding jurisdiction over uranium mining as such.[6]

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[3] CLI-06-7, 63 NRC 165 (2006).

[4] Under 10 C.F.R. § 20.1301(a)(1), each licensee must conduct operations so that a member of the public does not receive a dose exceeding 0.1 rem in a year "exclusive of the dose contributions from background radiation."

[5] Atomic Energy Act of 1954, as amended (AEA), § 62, 42 U.S.C. § 2092.

[6] *See, e.g., Rochester Gas and Electric Corp.* (Sterling Power Project Nuclear Unit No. 1), ALAB-507, 8 NRC 551, 554 n.7 (1978) ("[T]he Commission's authority over uranium ore and other 'source material' attaches only 'after removal from its place

(Continued on following page)

In keeping with this interpretation, the NRC begins its oversight at the mill, rather than at the mine. Part 40 of our regulations governs *processing* of uranium ore.[7] NRC regulates *in situ* leach mining, in contrast to conventional mining, because *in situ* extraction involves altering the chemical form of the uranium and thus constitutes the first step of processing.

Conventional mining is controlled by other regulatory authorities. The State of New Mexico, for example, regulates conventional uranium mining within the state.[8] New Mexico's laws address "the process of obtaining useful minerals from the earth," with the exception of "the extraction, processing, or disposal of commodities, byproduct materials or wastes or other activities regulated by the [NRC]."[9]

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of deposit in nature,' and not when the ore is mined," citing 42 U.S.C. § 2092 (emphasis removed)).

[7] In 10 C.F.R. § 40.4, our regulations define "unrefined and unprocessed ore" as "ore in its natural form prior to any processing *such as* grinding, roasting or beneficiating, or refining" (emphasis added).

[8] *See* New Mexico Mining Act, N.M. Stat. § 69-36-1 *et seq.* (1978).

[9] *See* N.M. Stat. § 69-36-3.H. In *New Mexico Mining Commission v. United Nuclear Corp.*, 57 P.3d 862 (N.M. Ct. App. 2002), the New Mexico Court of Appeals rejected the argument by a mining company that this statute gave New Mexico no jurisdiction over its uranium mining because of the clause exempting NRC-regulated activities. The Court noted that the NRC has never asserted jurisdiction over conventional uranium mining. *Id.* at 864.

Pursuant to this authority, New Mexico has enforced cleanup orders against United Nuclear Corporation (UNC) – HRI's predecessor-in-interest at Church Rock – with respect to its uranium mining activities within the state.[10]

The United States Environmental Protection Agency (EPA) exercises authority, under various statutes, to protect the public from hazards associated with so-called "technologically enhanced naturally occurring radioactive material" (TENORM), including TENORM produced in uranium mining.[11]

B. History of this Proceeding[12]

In 1994, HRI applied for a license to conduct *in situ* leach uranium mining at four sites in McKinley County, New Mexico. In January 1998, after completing its technical review of the application, the NRC Staff granted HRI a materials license under 10 C.F.R. Part 40 to mine all four sites. In May 1998, the then-Presiding Officer granted the Intervenors' requests for a hearing to challenge the license.

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[10] *See id.*

[11] *See* EPA's Web site at http:/www.epa.gov/radiation/tenorm/index.html; *see also* http://www.epa.gov/radiation/tenorm/uranium-waste.htm.

[12] The Presiding Officer described the long history of this proceeding, as well as the leach-mining process, in his January 6, 2006, Order. As such, we do not provide a lengthy recapitulation in today's decision.

The adjudication was split into two phases, with the first phase covering the sites where HRI intended to start operations. The order now under review comes from the second phase of the adjudication and deals with a site known as Church Rock Section 17. Although HRI has held its license for 8 years, it has not yet started mining at any of the four sites, "due, in part, to profitability concerns relating to the fluctuating price of uranium."[13]

The Church Rock Section 17 site is contaminated with mining spoil left over from underground uranium mining by its previous owner, UNC. UNC conducted underground mining on Section 17 for about 30 years before selling the land to HRI. The contamination is in the form of dust and rocks apparently lost from trucks hauling the ore from the site, or possibly from excavated rock used to build the road.[14] No ore was ever processed on the Section 17 site.[15]

Intervenors presented evidence suggesting that spoil left over from conventional mining on Section 17 has raised the level of gamma radiation at the site significantly.[16] They further provided expert

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[13] LBP-06-1, 63 NRC at 46.

[14] *See id.* at 52 n.7.

[15] *Id.*

[16] *See* Intervenors Eastern Navajo Diné Against Uranium Mining's, Southwest Research and Information Center's Written Presentation in Opposition to Hydro Resources, Inc.'s Application for a Materials License with Respect to: Radiological Air

(Continued on following page)

testimony showing that radioactive air emissions, particularly near the roads, were elevated as compared to nearby unmined areas having "physical, chemical, radiological and biological characteristics" similar to Section 17.[17] Intervenors claim that, due to this contamination, the Section 17 site emits radiation "above the NRC's minimum safety levels,"[18] and this is reason enough for the NRC to deny a license for any further mining activity there. Intervenors argue that HRI should be forced to clean up the existing contamination before it is allowed to proceed with additional uranium recovery processes.[19]

HRI argues that the dose levels of radiation at Section 17 are high due to "natural mineralization" in the area,[20] but acknowledges that the mine spoil has elevated the radiation levels at least to some extent.[21]

Emissions for Church Rock Section 17 (June 13, 2005), Declaration of Melinda Ronca-Battista, at 8-9, 12-13.

[17] *Id.*

[18] *See* Intervenors' Petition for Review of LBP-06-1 (Jan. 26, 2006) at 4.

[19] *See* Intervenors' Reply Brief Regarding Church Rock Section 17 Air Emissions (Mar. 20, 2006) at 5.

[20] *See* [HRI's] Response in Opposition to Intervenors' Written Presentation to the Presiding Officer Regarding Air Emissions (July 29, 2005) at 22-23.

[21] *See* HRI's Response at 28 ("It is likely that background gamma radiation will be elevated due to the presence of the naturally occurring radioactive materials (i.e., mine waste) noted above").

The issue we consider today deals exclusively with how to classify the radiation attributable to the existing mine spoil. Radioactive air emissions from HRI's proposed *in situ* leach mining operations are not at issue. The Presiding Officer found that HRI's controls would ensure its operations would not emit airborne radiation in excess of the 0.1-rem "total effective dose equivalent" (TEDE) limit set out in Part 20 of our regulations.[22] In making this finding, the Presiding Officer analyzed the text and history of key provisions of Part 20 and concluded that preexisting radioactive residue from prior mining should be considered "background radiation" and therefore not counted in the TEDE calculation.[23]

Conversely, however, in the first phase of this adjudication, a different Presiding Officer held that radioactive emissions from material left on the mine site, as well as emissions from an underground mine, should be considered part of the TEDE from HRI's operations.[24] In the ruling now at issue, the Presiding Officer considered and rejected the previous Presiding

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[22] LBP-06-1, 63 NRC at 69-71. Although Intervenors originally claimed that emissions from the old UNC mine should count toward TEDE, the issue is moot because the Presiding Officer found that there are no such emissions due to the sealing of the mine. *See* LBP-06-1, 63 NRC at 53-55. The Intervenors do not challenge that finding on appeal.

[23] *Id.* at 28-33.

[24] *Hydro Resources, Inc.* (2929 Coors Road, Suite 101, Albuquerque, NM 87120), LBP-99-15, 49 NRC 261, 266-67, *interlocutory petition for review denied*, CLI-99-8, 49 NRC 311 (1999).

Officer's reasoning on this issue.[25] This disagreement between the two Presiding Officers' rulings was one reason we took review of this matter.[26]

II. DISCUSSION

We agree with and affirm the phase II Presiding Officer's comprehensive decision.[27] His ruling is consistent with the NRC's regulations and with its longstanding interpretation of its role in the uranium fuel cycle. Were the NRC to expand the definition of TEDE to include radioactive air emissions from debris left over from unlicensed conventional mining activities, the agency, in effect, would be entering an area of regulation that it has historically considered beyond the scope of the Atomic Energy Act. This we decline to do.

A. TEDE

The key question that the Presiding Officer had to answer was whether the TEDE from HRI's operation would exceed our regulatory dose limits. The pertinent regulation ties the TEDE calculation to radiation from "licensed operations"; it expressly excludes preexisting "background radiation":

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[25] *See* LBP-06-1, 63 NRC at 59.

[26] *See* CLI-06-7, 63 NRC at 166.

[27] Hence, for the reasons given by the phase II Presiding Officer, we disagree with the phase I Presiding Officer that emissions from preexisting radioactive materials deposited onsite as part of an operation not licensed by the NRC should be considered part of the TEDE from the licensed operation. *See* LBP-06-1, 63 NRC at 55-59.

> Each licensee shall *conduct* operations so that –
>
> . . . The [TEDE] to individual members of the public from the licensed operation does not exceed 0.1 rem . . . in a year, exclusive of the dose contributions from background radiation, from any medical administration the individual has received, from exposure to individuals administered radioactive material and released under § 35.75, from voluntary participation in medical research programs, and from the licensee's disposal of radioactive material into sanitary sewerage in accordance with § 20.2003. . . .[28]

Thus, the plain language of the regulation on TEDE emissions excludes emissions not directly linked to licensed activity. Both grammar and logic dictate that the emissions from already existing mining spoil do not constitute emissions from the licensed operation. In HRI's case, then, only emissions actually stemming from the proposed *in situ* leach mining count in calculating the TEDE.

Intervenors gain no ground with their argument that the calculated TEDE from a "licensed operation" must include *all* radioactive emissions, not just those from "licensed materials."[29] The Presiding Officer's ruling does not say that the material emitting radiation must be "licensed" to count toward TEDE, only that it must come from the licensed operation. HRI's bare ownership of land containing radioactive mine spoil is not part of its NRC-licensed "operation." HRI did not bring the material to the surface. It is not required to have an NRC license to possess source material in the form of unprocessed ore (so long as it does not process that ore).[30] Nothing in the record suggests that HRI plans to "process" the dust and rock that cover the surface of Section 17.

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[28] 10 C.F.R. § 20.1301(a)(1) (emphasis added).

The Presiding Officer noted that simply interpreting the phrase "from the licensed operation" as limiting the scope of TEDE arguably renders unnecessary other provisions in the TEDE rule expressly excluding doses resulting from medical administrations and disposal of radioactive material in sanitary sewerage.[31] Because of this concern, the Presiding Officer took his analysis a step farther, and inquired whether mine spoil emissions fit into the category of "background radiation" – which our rules explicitly exclude from the TEDE calculation.[32] Finding that mine spoil is a subset of "naturally occurring radioactive material" (NORM) commonly known as "technologically enhanced naturally occurring radioactive material" or TENORM, he concluded that these emissions fit the definition of background radiation,[33] a matter to which we now turn.

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[29] *See* Intervenors' Supplemental Brief Regarding Church Rock Section 17 Air Emissions (Mar. 13, 2006) at 5 n.8.

[30] *See* 10 C.F.R § 40.13(b) (persons do not need a license to "possess" source material in the form of unprocessed and unrefined ore so long as they do not process or refine such ore).

[31] *See* LBP-06-1, 63 NRC at 66 n.22.

[32] *Id.*

B. Background Radiation

In 1991, NRC published revisions to the standards in 10 C.F.R. Part 20 for protection against radiation.[34] In its definition of "background radiation," the rule expanded the category of what was once called "natural background" radiation to include various anthropogenic sources as well as NORM, and to expressly exclude NRC-regulated sources:

> [R]adiation from cosmic sources; naturally occurring radioactive material, including radon (except as a decay product of source or special nuclear material); and global fallout as it exists in the environment from the testing of nuclear explosive devices or from past nuclear accidents such as Chernobyl that contribute to background radiation and are not under the control of the licensee. "*Background radiation*" does not include radiation

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[33] *Id.* at 65-69.

[34] Final Rule: "*Standards for Protection Against Radiation*," 56 Fed. Reg. 23,360, 23,365 (May 21, 1991).

> from source, byproduct, or special nuclear materials regulated by the Commission.[35]

"Naturally occurring radioactive material" – NORM – is not defined elsewhere in the regulations.

The Presiding Officer addressed the last sentence of the "background radiation" definition first, concluding that radiation from "source material" can be background radiation where, as here, the source material from which it emanates is not "source material . . . regulated by the Commission."[36] While the Atomic Energy Act provides that uranium and thorium are source material, the Presiding Officer explained, the NRC does not regulate *all* source material.[37] Unprocessed ores and source material with insignificant concentrations of radionuclides are not regulated by the Commission.[38] Because mining spoil is unprocessed ore and thus *not* "regulated by the Commission," the Presiding Officer determined that the last sentence of the definition did not preclude his finding that the radiatior from mining spoil constituted "background radiation."[39] The Presiding Officer went on to conclude that mining spoil should be considered NORM, and thus background radiation within the first sentence of our definition. He found that the mining spoil falls within the scope of TENORM.[40]

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[35] 10 C.F.R. § 20.1003.

[36] *See* LBP-06-1, 63 NRC at 55-60.

[37] *See id.* The Presiding Officer observed "If, as the Intervenors assert, radiation from *all* source material (whether or not regulated by the Commission) is excluded from background radiation, then radiation from, for example, surface soils and outcrops containing naturally occurring uranium and thorium would be excluded from background radiation." *Id.* at 57-58 (emphasis in original).

[38] *See* AEA § 3z, 42 U.S.C. § 2014z ("Source material" includes ores containing uranium or thorium in concentrations that the Commission determines to be significant); *see also* 10 C.F.R. § 20.1003 (setting the threshold concentration at 0.05%). The Presiding Officer also found that the record showed that the mining spoil did not exceed the threshold concentration of uranium to make it licensable material. LBP-06-1, 63 NRC at 62.

The Presiding Officer's understanding of our "background radiation" definition is correct. At the time the NRC drafted the regulation defining "background radiation," the term NORM was understood to include TENORM. This is evidence from the definition's history. It shows that the NRC considered, and explicitly rejected, a suggestion by the Advisory Committee on Reactor Safeguards (ACRS) that the proposed rule be revised to "emphasize" that NORM did *not* include TENORM.[41] As the ACRS suggestion implicitly recognized, *excluding* TENORM would have required express language, if that was what the NRC had intended with this regulation. But the agency rejected the ACRS suggestion, for the reason that most TENORM is outside NRC's regulatory jurisdiction.[42] As the Presiding Officer recounts, over the years the NRC and other regulatory authorities have repeatedly considered "TENORM" as equivalent to "NORM."[43]

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[39] *See* LBP-06-1, 63 NRC at 61-63. The Presiding Officer explained that the mining spoil is "not regulated by the Commission" both because Part 40 regulations exempt from regulations "unimportant quantities" of source material and because the spoil is "unrefined and unprocessed" ore. *See* 10 C.F.R. § 40.13(b).

[40] LBP-06-1, 63 NRC at 65-69.

[41] *See* SECY-88-315, Memorandum from Victor Stello, Jr., NRC Executive Director for Operations, to the Commissioners re: Revision of 10 C.F.R. Part 20, "Standards for Protection Against Radiation," Enclosure 10, at 3-4 (Nov. 4, 1988).

Intervenors argue that mine spoil excavated from underground cannot be NORM, and hence cannot emit "background radiation," because the ordinary meaning of "naturally occurring" is "undisturbed in nature."[44] But, as the Presiding Officer suggested,[45] it is a well-established rule of construction that "technical terms of art should be interpreted by reference to the trade or industry to which they apply."[46] The

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[42] *Id.*

[43] *See* LBP-06-1, 63 NRC at 67.

[44] *See* Petition for Review at 4; Intervenors' Supplemental Brief at 3-4.

[45] *See* LBP-06-1, 63 NRC at 66-68 & n.24.

[46] *Louisiana Public Service Commission v. Federal Communications Commission*, 476 U.S. 355, 372 (1986), citing *Corning Glass Works v. Brennan*, 417 U.S. 188 (1974). In *Corning Glass*, the Court deferred to the U.S. Department of Labor's interpretation that the term "working conditions" meant physical surroundings and not whether the work shift was during night or day: "While a layman might well assume that time of day worked reflects one aspect of a job's 'working conditions,' the term has a different and much more specific meaning in the language of industrial relations." 417 U.S. at 202. *See also Utah v. Evans*, 536 U.S. 452, 468 (2002) (Federal statute prohibiting

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Presiding Officer pointed to *Smith v. United States*[47] to illustrate that a layman's reading of a regulation, uninformed by context, is not decisive. In *Smith,* the U.S. Supreme Court ruled that trading a firearm for drugs could be considered the "use" of a firearm during a drug trafficking crime, as that term was used in the statute, even though to the "average person on the street" the words "use of a firearm" would evoke use of a firearm *as a weapon*. Similarly, although the term "naturally occurring" certainly includes, as Intervenors stress, material "undisturbed in nature," it also can be understood to include naturally occurring radioactive material that has been moved, but neither artificially produced nor processed for its radioactive content. This is particularly true where, as here, that is the relevant regulatory agency's (the NRC's) understanding as well as that of the regulated industry.

Intervenors are simply mistaken in their assertion that TENORM only designates materials, such as plasterboard and fertilizer, that have been manufactured for a use unrelated to their incidental radioactive properties. The EPA, which regulates TENORM, describes TENORM as including waste streams from various industries, such as sewage treatment waste

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the Census Bureau from using "the statistical method known as 'sampling,'" did not prohibit the use of another technique known as "hot-deck imputation" because each term had specific, and different, meaning as used by statisticians).

[47] 508 U.S. 223 (1993).

and waste from drinking water treatment.[48] Consistent with this, the NRC has recognized that TENORM includes waste materials:

> TENORM is found in various concentrations in a variety of forms (physical and chemical matrices) such as scrap metal, sludges, fluids, scales in storage tanks and piping, chemical residues, processing fluids, surface and groundwaters, and mine tailings.[49]

Finally, we reject Intervenors' claim that the Presiding Officer improperly broadened our "background radiation" regulation in a way that should only be done in a formal rulemaking. As shown above, the understanding at the time the regulation issued implicitly included TENORM as a type of NORM. The fact that NRC regulations do not define "TENORM," as such, is not surprising There is no need for the NRC to draw fine distinctions among various classes of materials that it does not even regulate; the spoil leftover from mining falls into that category.

The Presiding Officer, in short, had ample basis to conclude that mining spoil near the site of HRI's leach mining operation does not contribute to the TEDE for the "licensed operation" and, in fact, should be considered background radiation

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[48] For more information, see the EPA's Web site, *supra* note 11.

[49] SECY-01-0057, Partial Response to SRM COMEXM-00-0002 – "Expansion of NRC Statutory Authority Over Medical Use of Naturally Occurring and Accelerator-Produced Radioactive Material (NARM)," Attachment 2, P. Egidi and C. Hull, "NORM and TENORM Producers, Users, and Proposed Regulations" (1999), at 1.

C. Policy Considerations

We reject Intervenors' overarching argument that we should invalidate HRI's license for policy reasons, lest we shirk our duty to protect the public from unsafe levels of radiation, Intervenors argue that granting HRI a license "rewards HRI for failing to remediate its site," and complain that a land transfer from UNC to HRI should not transform contamination into "background radiation."[50]

According to the Presiding Officer's findings (which Intervenors do not challenge), HRI's *in situ* leach mining operations will have a negligible effect of radioactive air emissions around the site. But under Intervenors' theory, the NRC should revoke the license for HRI's benign activity because of preexisting contamination that denying the license would not alleviate. Nowhere in Intervenors petition for review or supplemental brief do they cite authority for NRC to order cleanup of the preexisting radiation at the Section 17 site. As such, we decline to revoke HRI's license because of the existence of residue from prior mining activity that the NRC did not, and does not, regulate.

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[50] *See* Intervenors' Supplemental Brief Regarding Church Rock Section 17 Air Emissions (Mar. 13 2006) at 9-10; *see also* Petition for Review at 9.

The Presiding Officer's decision (and our decision affirming it) does not extinguish any right or cause of action Intervenors may have under state (or other Federal) law to force a cleanup. It merely finds that, *for purposes of calculating the TEDE* for an NRC-licensed activity, radiation from preexisting, conventional mining spoil is not included. Policy considerations do not support revoking HRI's license.

III. CONCLUSION

For the foregoing reasons, and for the reasons given by the Presiding Officer the Presiding Officer's partial initial decision on phase II radiological air emissions is hereby *affirmed.*

IT IS SO ORDERED.

For the Commission

ANNETTE L. VIETTI-COOK
Secretary of the Commission

CLI-04-33

Cite as 60 N.R.C. 581 (2004)

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:
Dale E. Klein, Chairman
Edward McGaffigan, Jr.
Jeffrey S. Merrifield
Gregory B. Jaczko
Peter B. Lyons

IN THE MATTER OF
HYDRO RESOURCES, INC.
(P.O. Box 777, Crownpoint,
New Mexico 87313)

No. 40-8968-ML
December 8, 2004

MEMORANDUM AND ORDER

I. INTRODUCTION

This long-pending adjudicatory proceeding concerns a license for a proposed multiple-site *in situ* leach uranium mining project in New Mexico that was issued to Hydro Resources, Inc. (HRI). Intervenors challenge the validity of the issued license in this proceeding initiated under 10 C.F.R. Part 2, Subpart L.[1] The proceeding was held in abeyance for approximately 2 years pending unsuccessful settlement negotiations, and resumed last year. Earlier this year, the Presiding Officer issued LBP-04-3,[2] a decision on the adequacy of HRI's financial assurance plan for the Church Rock Section 8 site. The Commission granted two petitions for review of the Presiding Officer's decision, one filed by HRI and the other by Intervenors Eastern Navajo Diné Against Uranium Mining (ENDAUM) and the Southwest Research and Information Center (SRIC).[3] In this decision, we affirm in part and reverse in part LBP-04-3.

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[1] The NRC recently amended its adjudicatory procedural rules in 10 C.F.R. Part 2. *See* Final Rule: "*Changes to Adjudicatory Process*," 69 Fed. Reg. 2182 (Jan. 14, 2004). The new procedural rules apply to proceedings noticed on or after February 13, 2004, and therefore have not been applied in this proceeding.

II. BACKGROUND

HRI applied for and received an NRC materials license to conduct *in situ* leach mining at four sites in New Mexico: Section 8 and Section 17 located in Church Rock, New Mexico, and the Unit 1 and Crownpoint sites, located in Crownpoint, New Mexico. HRI proposed and its license authorizes a phased development of the properties, beginning with operations at Church Rock Section 8. In this proceeding, the issues concerning Section 8 were litigated first. Still pending before the Presiding Officer are issues concerning the other three proposed mining sites: Church Rock Section 17, Unit 1, and Crownpoint.

Before us today is the Presiding Officer's decision on the adequacy of HRI's financial assurance plan.

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[2] 59 NRC 84 (2004).

[3] CLI-04-14, 59 NRC 250 (2004).

HRI submitted its financial assurance plan for Section 8, termed the Restoration Action Plan (RAP), on November 21, 2000, and provided a revised plan on March 16, 2001. Intervenors ENDAUM and SRIC challenged several aspects of HRI's plan, including estimated groundwater restoration costs, estimated labor and equipment costs, and the proposed method of plugging the wells. In LBP-04-3, the Presiding Officer found that HRI's plan has several deficiencies requiring correction. Among those items, the Presiding Officer found that HRI's labor and equipment cost estimates were not properly supported and must be recalculated.

Both HRI and the Intervenors petitioned for review of LBP-04-3, and the Commission granted both petitions. HRI's petition took issue with the Presiding Officer's rulings on the estimated labor and equipment costs. The Intervenors' petition argued that the Presiding Officer improperly refused to consider arguments that they had raised challenging HRI's estimate of the volume of water that will need to be processed and circulated to restore the groundwater in Section 8, a technical issue that bears significantly on the ultimate cost of groundwater restoration.

Below, we first describe and address the water volume issue (referred to generally as the "pore volumes" issue) raised on review by the Intervenors. Next, we address the Presiding Officer's labor and equipment findings challenged by HRI.

III. ANALYSIS OF WATER VOLUME (PORE VOLUMES) ISSUE

Understanding the water volume issue requires some knowledge of: (1) technical terms, (2) relevant procedural case history, and (3) two license conditions in HRI's license. Below, we provide the necessary background before turning to our merits decision.

A. Background on Pore Volumes

The principal cost of groundwater restoration stems from the volume of water (usually expressed in "pore volumes") that must be pumped from or recirculated through the mine zone. The term pore volume is used to describe the quantity of free water in the pores of a given volume of rock.[4] It represents the water that "fills the void space inside a certain volume of rock," and as such "is an indirect measure of the volume of water that must be pumped or processed to restore the groundwater."[5] Thus, a pore volume is used as a parameter to describe "how many times the contaminated volume of water in the rock must be displaced or processed to restore groundwater quality."[6] Typically, the more pore volumes of water that must be pumped or processed to restore groundwater quality, the more it will cost to achieve groundwater restoration. Restoration costs, consequently, "are closely linked to the amount of water that must be processed to restore the groundwater."[7]

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[4] Restoration Action Plan at E-2a.

[5] NUREG-1508, "Final Environmental Impact Statement To Construct and Operate the Crownpoint Uranium Solution Mining Project, Crownpoint, New Mexico" ("FEIS") (Feb. 1997) at 4-29.

[6] *Id.*

HRI originally estimated that it would take 4 pore volumes of water to bring the groundwater in each of the proposed sites to restoration standards.[8] The NRC Staff, however, found this estimate too low. Based upon the various HRI-submitted documents that it had reviewed, the Staff estimated that it would take 9 pore volumes of water to adequately restore the groundwater at the proposed project sites. Accordingly, the Staff in the FEIS "calculated groundwater impacts [at each of the proposed sites, including all of Church Rock] assuming the use of 9 pore volumes for groundwater restoration."[9] HRI then similarly adopted this initial 9 pore volume assumption for groundwater restoration.

In adopting 9 pore volumes as an initial estimate, the Staff relied upon data from various groundwater studies. In particular, the Staff relied upon the results of a pilot project – termed the Section 9 Pilot Project – conducted by the Mobil Oil Company in 1979, approximately 1 mile north of the Unit 1 site.[10]

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[7] *Id.*

[8] *See, e.g., id.*

[9] *See id.* at 4-40; *see also, e.g., id.* at 4-58 to 4-60, 4-122.

[10] *See, e.g., id.* at 4-37 to 4-40, 4-33 to 4-34.

The Staff also reviewed the results of some small-scale site-specific tests, which HRI had submitted. However, the Staff had "significant concerns," given that the only site-specific tests that had been done were "small-scale" tests.[11] The Staff wanted the added confidence that would come from having the results of a large-scale site-specific groundwater restoration demonstration. Thus, in the FEIS, the Staff emphasized that more site-specific information would be necessary to actually *demonstrate* that restoration standards could in fact be achieved at the HRI sites on a large or "production-scale" level.[12] The Staff further believed it would be prudent to obtain this commercial-scale information before HRI proceeded with operations "beyond Church Rock" (which at the time of the Staff's review included both Sections 8 and 17), and particularly before HRI "approach[ed] the town of Crownpoint."[13] Therefore, to address this lack of large-scale, site-specific information, the Staff imposed particular license conditions.

For example, License Condition 10.28 mandates that HRI perform a large-scale groundwater restoration demonstration at the Church Rock site. This license condition bars HRI from proceeding to inject lixiviant beyond the Church Rock site – e.g., at Unit 1 or Crownpoint – unless the NRC has approved the results of the Church Rock groundwater demonstration. License Condition 10.28 requires HRI to conduct a demonstration, "on a large enough scale, acceptable to the NRC," to determine the number of pore volumes required to restore a production-scale well field, which would include a number of production and injection wells.[14] The demonstration results will act either to confirm the 9 pore volume initial estimate for restoration, or, conversely, will indicate that this estimate was off the mark and requires revision. Thus, the intent of the groundwater restoration demonstration would be, as HRI's counsel described, "to demonstrate 9 PVs [pore volumes] on a fairly large scale."[15]

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[11] *See, e.g., id.* at 4-29, 4-62, 4-113.

[12] *See, e.g, id.* at 4-62, 4-113.

[13] *See* Hearing Transcript (Nov. 8, 2001) at 304, 307.

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[14] *See* SUA-1508, LC-10.28; FEIS at 4-15.

[15] Transcript at 288. In LBP-04-3, the Presiding Officer directed the NRC Staff to revise License Condition 10.28. The terms of the original LC 10.28 prohibit HRI from injecting lixiviant at either the Unit 1 or Crownpoint sites prior to submitting NRC-approved results of a groundwater restoration demonstration at "Church Rock" generally. This would have allowed HRI to inject lixiviant at both of the Church Rock sites – Section 8 and Section 17 – prior to conducting the required groundwater restoration demonstration. At the time the license condition was written, however, Church Rock had not been divided into two separate sites (Sections 8 and 17). Because the license condition was intended to prevent HRI from proceeding beyond its initial mining site prior to conducting a commercial-scale restoration project, the Presiding Officer in LBP-04-3 directed the NRC Staff to amend LC 10.28 to restrict HRI from proceeding beyond Church Rock Section 8 prior to conducting a groundwater restoration demonstration at Section 8. *See* 59 NRC at 95-96. Under the revised license condition, HRI will not be able to proceed to Section 17, Unit 1, or Crownpoint until a

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Similarly, in addressing surety requirements, License Condition 9.5 specifies that surety for the restoration of HRI's initial well fields be based on the 9 pore volumes estimate, and be maintained at this level until the number of pore volumes required to restore the groundwater quality of a production-scale well field has been established or demonstrated by the restoration demonstration in LC 10.28.[16] The license condition stresses that if "at any time it is found that well field restoration requires greater pore volumes or higher restoration costs, the value of the surety will be adjusted upwards."[17]

The reasonableness of 9 pore volumes as an estimate was challenged in earlier portions of this proceeding. In earlier litigation on financial assurance and on groundwater impacts, the Intervenors alleged that groundwater restoration standards in Section 8 cannot be achieved with 9 pore volumes.[18] The Presiding Officers' initial decisions on these issues went against the Intervenors. The decisions

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restoration demonstration at Section 8 has been conducted, reviewed, and approved.

[16] *See* SUA-1508, License Condition 9.5.

[17] *Id.*

[18] *See, e.g.*, ENDAUM and SRIC's Brief (Financial Assurance for Decommissioning) (Jan. 11, 1999) at 15-16, and Attach. 1, Sheehan Affidavit at 15 n.6; Intervenors' Written Presentation with Respect to Groundwater (Jan. 11, 1999), Staub Affidavit at 39-44; Intervenors' Joint Response to HRI's and the NRC Staff's Responses to the Presiding Officer's April 21, 1999 Questions (May 25, 1999), at 12.

nonetheless noted that "the requirement does not end at 9 pore volumes," if in fact it is shown that more than 9 pore volumes are needed.[19] and likewise that the "surety amount may be increased if 'at any time' it is determined that well-field restoration requires greater pore volumes or a higher cost."[20]

The Commission explicitly affirmed the financial assurance ruling on pore volumes, concurring with the Presiding Officer that the Intervenors' expert had provided "unconvincing" testimony.[21] The Commission declined review of the Presiding Officer's groundwater decision, stating that the Intervenors had not identified any "clearly erroneous" factual finding or important legal error.[22] In short, the reasonableness of the initial 9 pore volume estimate for groundwater restoration at Section 8 was litigated, indeed litigated twice, in separate decisions on groundwater impacts and financial assurance.

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[19] *Hydro Resources, Inc.* (2929 Coors Road, Suite 101, Albuquerque, NM 87120), LBP-99-30, 50 NRC 77, 103-06 (1999).

[20] *Hydro Resources, Inc.* (2929 Coors Road, Suite 101, Albuquerque, NM 87120), LBP-99-13, 49 NRC 233, 236-37 (1999) (*citing* License Condition 9.5).

[21] *Hydro Resources, Inc.* (2929 Coors Road, Suite 101, Albuquerque, NM 87120), CLI-00-8, 51 NRC 227, 244 (2000).

[22] CLI-00-12, 52 NRC 1, 3 (2000).

B. No New Information Warranting Relitigation of Pore Volume Estimate

In our earlier financial assurance decision in this proceeding, the Commission found that our regulations require the submission of a financial plan that includes cost estimates, and that this plan should be submitted with an applicant's environmental report. We determined that HRI had not yet submitted the "requisite financial assurance plan, with cost estimates."[23] We therefore prohibited HRI from using its license until it had submitted and the Staff approved a "financial-assurance plan and cost estimate[s]."[24]

Pursuant to our order, HRI submitted its Restoration Action Plan, outlining cost estimates for restoration of Section 8. In calculating the groundwater restoration costs, HRI utilized the earlier-litigated assumption that it will take 9 pore volumes to restore Section 8 groundwater to restoration standards. Thus, HRI's estimated restoration costs are based on the processing and circulation of 9 pore volumes of groundwater. Before the Presiding Officer, the Intervenors raised numerous challenges to the restoration plan. One argument was that the plan underestimated restoration costs because it grossly underestimated the water volume that would be necessary to restore Section 8 groundwater.

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[23] CLI-00-8, 51 NRC at 241.

[24] *Id.* at 242.

Thus, in challenging HRI's financial plan, the Intervenors challenged – again – the *same* 9 pore volume estimate that had been litigated before. The Presiding Officer in LBP-04-3 therefore declined to consider the Intervenors' arguments on the pore volume estimate, noting that the issue had been litigated earlier and indeed had been affirmed by the Commission.

Petitioning for review of LBP-04-3, the Intervenors argued before us that HRI's Restoration Action Plan contains relevant new information bearing on the pore volumes estimate. Accordingly, in granting review, the Commission emphasized that we would focus "on the limited question of whether there is any significant issue on pore volumes that the Intervenors reasonably could not have raised before HRI filed its plan."[25] The Intervenors, we stressed, "are not entitled now to an additional opportunity to raise arguments that either have been or *could have been* raised previously."[26] We directed that the briefs focus on this point.

Nowhere in their appellate briefs, however, do the Intervenors point to any *new* information in the Restoration Action Plan that might call into question the adequacy of the 9 pore volume estimate. While the Restoration Action Plan "connect[s] pore volumes to a cost estimate,"[27] as the Intervenors state, the underlying technical basis for the 9 pore volume assumption used in the plan already has been challenged and litigated. The reappearance of the 9 pore volume estimate within the context of an actual budget, this time with a price tag attached, does not provide a new opportunity to raise arguments that could have been raised before, on an underlying technical issue that was litigated previously. In challenging the financial plan, the Intervenors properly could raise questions about HRI's estimated dollar cost of processing 9 pore volumes of water, but they could not challenge anew the pore volume estimate itself, an issue they had litigated and lost. When we said in our earlier financial decision in CLI-00-8 that HRI needed to submit a financial plan, and that the plan would be subject to a hearing, we never intended to allow relitigation of matters previously decided. Our decision had already affirmed the 9 pore volume initial estimate for Section 8 groundwater restoration.[28]

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[25] CLI-04-14, 59 NRC at 253.

[26] *Id.* (emphasis in original).

On review, the Intervenors argue that the Restoration Action Plan represented "the first time in the course of the proceedings where all the specific elements of [HRI's] groundwater restoration calculations were revealed for the entirety of Section 8."[29] But this is certainly not the case. The exact same data and formula – the exact same "elements" – used in the Restoration Action Plan for calculating the volume of groundwater expected to be processed in each zone of Section 8 were made available in this proceeding at the *latest* by February 1999. At that time, in response to the Intervenors' groundwater presentation, HRI witness Mark Pelizza submitted an affidavit with detailed information identical to that contained in the Restoration Action Plan.[30] Thus, contrary to the Intervenors' claim, the Restoration Action Plan is not "the first time . . . HRI presented its technical basis for its groundwater restoration cost estimates."[31]

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[27] Brief of Intervenors on Review of LBP-04-3 (Intervenors' Initial Brief/Pore Volumes) (June 14, 2004) at 19.

[28] CLI-00-8, 51 NRC at 244.

[29] Intervenors' Initial Brief/Pore Volumes at 18.

Nor was HRI's information "buried" or in any sense hidden. In the Pelizza affidavit, HRI provided an entire section on pore volumes, prominently titled "Pore Volumes – An Important ISL Term of Art." This section, together with a referenced chart attachment titled "Church Rock Section 8 – Pore Volume Calculated By Zone," describes the factors HRI considered in calculating a pore volume, and lists the specific factors and pore volume calculations for all of Section 8, including each zone's area, thickness, volume, porosity, and the vertical and horizontal flare factors

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[30] *Compare* Restoration Action Plan, Attach. E2(a) *with* HRI's Response to Intervenors' Brief (Groundwater Issues) (Feb. 19, 1999), Exh. 1, Pelizza Affidavit at 12-14 and Attach. 3.

[31] Intervenors' Initial Brief/Pore Volumes at 20.

HRI will apply.[32] Any concerns about the methodology that HRI used for pore volume calculation, or about any of the specific pore volume values HRI assigned for all or portions of Section 8, could have and should have been raised then – more than 5 years ago.

Indeed, in 1999 the Intervenors requested and were granted an opportunity to reply to HRI's response to Intervenors' groundwater presentation. Yet, in a lengthy reply filing containing three affidavits from experts, HRI's detailed pore volume calculations were never once challenged, nor even mentioned.[33]

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[32] A "pore volume" itself is not a fixed or constant unit, such as 1 gallon or liter. Consequently, to estimate *how many* individual pore volumes of groundwater must be processed at any given site, one must first calculate and establish how many gallons of water are represented in 1 pore volume for the site or zone at issue. HRI used the "ore volume" method to calculate the water gallons in one pore volume. This method calculates a pore volume at an *in situ* leach mine by multiplying the mine's wellfield area by the ore zone thickness, and the porosity of the rock. The result is then converted to units of measurement, i.e., gallons. Moreover, to account for the portion of the aquifer that may contain lixiviant that may have "flared," or migrated laterally or horizontally and thus migrated outside of the boundaries of the calculated ore pore volume, a lateral and a vertical "flare factor" are used as further multipliers. *See generally* Restoration Action Plan at E2a. Thus, the formula HRI used was: Pore Volume = Area x Thickness x Porosity x Conversion Factor (for gallons) x Horizontal Flare Factor x Vertical Flare Factor.

[33] *See generally* ENDAUM and SRIC's Reply in Response to HRI's and the NRC Staff's Response Presentations on Groundwater Protection Issues (Apr. 8, 1999).

The Intervenors further claim that relevant parts of the technical basis for the groundwater restoration were scattered "throughout the record," requiring the "[i]ntervenors to assemble, from different parts of a voluminous record, some of the calculations HRI might have used for cost estimates."[34] But all of the key factors used in the Restoration Action Plan to calculate the pore volumes for Section 8 had already been discussed by HRI, indeed in a single document: the Pelizza affidavit with its attached pore volume calculation chart.[35]

Moreover, there is in the record earlier, very similar, information on Section 8 pore volume calculations that HRI had provided in a response to a Staff Request for Additional Information (RAI #59). This

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[34] Intervenors' Initial Brief/Pore Volumes at 20.

[35] The Intervenors stress that the 1999 Pelizza affidavit was filed in the *groundwater* portion of the proceeding, and that neither the Presiding Officer nor the Commission cited this document in their financial assurance decisions. But the fact remains that the Intervenors had opportunities to challenge the pore volume calculation in the Pelizza affidavit in both proceedings, both before the Presiding Officer and the Commission. They could have challenged it in their groundwater reply, or cited it in their petitions for review of the groundwater decision or of the financial assurance decision. Finally, it is not surprising that neither the Board nor Commission decisions bearing on pore volumes specifically cited the Pelizza affidavit's pore volume calculation chart. After all, the Intervenors never once referenced or challenged the affidavit's pore volume calculation data. They did challenge the 9 pore volume estimate, but their challenge focused on the results of the Mobil 9 study and its applicability to Section 8.

RAI response, which "tabulate[d] the restoration water quantity volumes which are contained in a pore volume" for Section 8, also could have served as a basis for challenging HRI's pore volume methodology, or as a basis for challenging any of the pore volume variables – porosity, flare factors, etc. – that HRI had specified for Section 8.[36] As the Intervenors themselves now point out, the RAI response calculated the "[t]otal restoration volumes in gallons . . . for each zone and for the entire Section 8."[37] Notably, the Intervenors obtained this RAI response well over a year prior to filing their groundwater and financial assurance presentations, and thus had ample time to review and consider the information, and to raise any pertinent questions. On review, the Intervenors argue that "[n]either the text of the [RAI] response itself, nor the [attached table], provided any basis for the selection of the variables used to estimate water consumption."[38] But as the NRC Staff states, "the Intervenors provide no explanation why they could not have argued these same points in 1999," when they filed their groundwater presentation.[39]

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[36] *See* HRI Response to RAI #59, "Groundwater Consumption," and Attachment 59-1, chart entitled "Groundwater Restoration Volume Calculated by Zone" for Section 8, attached to letter from M. Pelliza, HRI, to J. Holonich, NRC (April 1, 1996).

[37] Intervenors' Initial Brief/Pore Volumes at 8.

[38] *Id.*

[39] NRC Staff's Response Brief (July 12, 2004) at 18.

The Intervenors further claim that HRI "changed the values" it used to calculate groundwater restoration cost estimates in different parts of the proceeding. This is true. HRI's 1996 response to RAI #59 used a porosity factor of 0.21, the Staff's 1997 FEIS assigned a porosity factor of 0.28, and the 1999 Pelizza affidavit used a porosity factor of 0.25. These differences, however, do not cure the Intervenors' failure to have raised any question or concern about any of these porosity figures, or about any of the other values consistently used by HRI in its pore volume calculations. All these numbers appeared years ago in documents of which the Intervenors were well aware. Questions about the porosity values or any other specified values – be it whether they were adequately explained, supported, or inconsistently used – should have been raised long ago.[40]

It was the Intervenors' obligation to review the record carefully for any material information pertaining to the pore volume calculations. If a party were free to raise new arguments once it realized "that maybe there was something after all to a challenge it either originally opted not to make or which simply did not occur to it at the outset,"[41] NRC adjudicatory proceedings would prove endless. Thus, Intervenors have an obligation to review the record closely and to raise their arguments promptly. The Commission must insist that Intervenors and all parties be disciplined in their scrutiny of the record.

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[40] Moreover, we do not believe that the 0.03 difference in porosity value between what the FEIS proposes and what HRI's plan specifies would otherwise warrant our remanding this issue to the Staff for its reassessment.

[41] *Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-03-17, 58 NRC 419, 428-29 (2003) (citations omitted).

We turn now to arguments inappropriately raised for the first time in the briefs on review. When we granted review of LBP-04-3, it was based on the Intervenors' argument that HRI had never "attempt[ed] to justify its pore volume estimate" until it filed its Restoration Action Plan, and therefore that the plan contained new information on the "rationale" for the 9 pore volume estimate.[42] Accordingly, the Commission specified that review would be "focused . . . on the limited question" of whether there is any significant issue on pore volumes that the Intervenors reasonably "could not have raised previously."[43] As we have noted in this Decision, however, the Intervenors' briefs do not point to any issue that they could not have raised earlier in this proceeding.

Perhaps realizing that the technical challenges to the pore volume estimate that they seek to raise in fact could have been raised earlier, the Intervenors have used their briefs on review to present entirely new claims, not articulated in the petition for review. Indeed, the Intervenors now raise as their prime argument the claim that the 9 pore volume estimate "cannot serve as the basis" for HRI's groundwater restoration costs for all of Section 8's well fields because the estimate "applies only to HRI's restoration demonstration project,"[44] which HRI has indicated is planned for the first well field, following uranium recovery operations.

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[42] ENDAUM and SRIC Petition for Review of LBP-04-3 (Mar. 18, 2004) at 6, 2.

[43] CLI-04-14, 59 NRC at 253.

As we understand it, the Intervenors' new argument is that they have been denied the opportunity to challenge the basis for HRI's cost estimates for the entirety of Section 8 because the pore volume estimate only applies to the first well field in Section 8. They argue that they now should be allowed to challenge HRI's pore volume calculations "for the entirety of Section 8, not just the initial demonstration wellfield."[45] Because License Conditions 9.5 and 10.28 require HRI to perform a large-scale restoration demonstration in Church Rock sufficient to demonstrate the number of pore volumes necessary to restore a production-scale well field, the Intervenors suggest that the initial 9 pore volume estimate for restoration was never intended to apply to all of Section 8, only to the restoration demonstration, and therefore only to an initial well field where HRI plans to conduct the demonstration.

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[44] Intervenors' Initial Brief/Pore Volumes at 23.

[45] ENDAUM and SRIC's Reply to HRI's and the NRC Staff's Responses (Intervenors' Reply/Pore Volumes) (July 26, 2004) at 4.

This distinctly new argument surfaced before the Commission only in the briefs on appeal, and as such we need not address it. The Commission "deem[s] waived any arguments not raised before the Board or not clearly articulated in the petition for review."[46] Parties are expected to identify their "strongest arguments clearly and concisely" in the petition for review.[47] Moreover, License Conditions 9.5 and 10.28, upon which the Intervenors' new argument rests, were in place as of 1998. The Intervenors give no persuasive reason for why this argument was not made earlier in briefs before the Presiding Officer or Commission.

Thus, we do not consider the Intervenors' new argument litigable this late in the proceeding. We will, however, take the time here to clarify a few points.

Significantly, what was *litigated* earlier in this proceeding was the reasonableness of the initial 9 pore volume estimate for groundwater restoration of Section 8 *as a whole*. The parties did not litigate whether 9 pore volumes should prove sufficient to restore simply one or two well fields in Section 8, but whether Section 8 generally could be successfully restored assuming a 9 pore volume restoration effort. In short, the Intervenors already have challenged the reasonableness of the initial pore volume estimate for the *entirety* of Section 8.[48]

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[46] *Carolina Power & Light Co.* (Shearon Harris Nuclear Power Plant), CLI-01-11, 53 NRC 370, 383 (2001).

[47] *Hydro Resources, Inc.* (P.O. Box 15910, Rio Rancho, NM 87174), CLI-01-4, 53 NRC 31, 46 (2001).

License Condition 9.5's direction that surety for restoration of the "initial well fields" be based on 9 pore volumes and be "maintained at this level" until data from the restoration demonstration is obtained does not change the fact that 9 pore volumes remains the *initial* pore volume estimate for *all* of Section 8, and indeed for the other proposed project sites as well.[49] That the Staff set up an approach to allow the 9 pore volume estimate to be confirmed or revised does not eliminate the 9 pore volume initial estimate for HRI's proposed sites, including Section 8.[50] If the

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[48] Intervenors are also wrong in claiming that "the calculations used to arrive at the 9 pore volume figure apply only to the groundwater restoration demonstration." *See* Intervenors' Reply/Pore Volumes at 8. The underlying technical basis for the 9 pore volume estimate is applicable to all of Section 8. The current 9 pore volume estimate for the restoration of the proposed sites is based on the results of the Mobil Section 9 demonstration project. Further, the water volume calculations for each zone of Section 8 were obtained using the same methodology and the same assumed values for porosity, flare factors, etc., with the only difference being the area of each zone. Nor has any argument been raised showing why the pore volume estimate for restoration of the initial well field(s) should be different from that of the other well fields in Section 8. Four well fields are currently planned for Section 8. *See* HRI's Consolidated Operations Plan at C-18, Figure 1.4-6.

[49] *See* FEIS at 4-29, 4-40, 4-58 to 4-60, 4-62, 4-122.

[50] Indeed, the Staff only required that the restoration demonstration results be approved before HRI proceeded to the Unit 1 or Crownpoint sites. By necessity, then, the Staff's 9 pore

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demonstration results confirm the estimate, no revision to the pore volume estimate will be necessary. Conversely, if HRI is unable to successfully complete the restoration demonstration using up to 9 pore volumes, it "can't use that same number [as the estimate] for the remaining sites,"[51] as NRC Staff counsel explained to the Presiding Officer.

This proceeding, though complex, has not deprived the Intervenors of a meaningful opportunity to challenge the financial assurance plan. As we explained above, the Intervenors had a fair opportunity to challenge the 9 pore volume estimate for Section 8, which was based upon the available information to date. The fact that data from the restoration demonstration project will be reviewed for confirmation of the 9 pore volume estimate does not obviate the fact that a meaningful hearing has been provided for the adjudication of the 9 pore volume estimate.[52]

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volume estimate for groundwater restoration clearly was intended to apply at least to *all* of Church Rock, Sections 8 and 17.

[51] *See* Transcript at 284-85.

[52] Moreover, under the prudent licensing approach here, "[i]f at any time it is found that well field restoration requires greater pore-volumes or higher restoration costs, the value of the surety will be adjusted upwards." SUA-1508, LC 9.5. The Staff indicates that Intervenors will have notice of license amendments to adjust the surety amount. *See* Transcript at 395-96; *see also id.* at 217-18, 244-45, 392, 407-09; NUREG-1569, "SRP, Final Report" (June 2003), App. C at C-4. Therefore, the Intervenors may have a further opportunity to participate on pore volume considerations. In addition, HRI is required to update

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In sum, the Commission affirms LBP-04-3's finding that the pore volume estimate was litigated previously. We find no new information in the Restoration Action Plan to warrant revisiting the initial 9 pore volume estimate for groundwater restoration in this proceeding.[53] But we expect the NRC Staff to

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and the NRC is to review the surety annually. *See* 10 C.F.R. Part 40, App. A, Criterion 9; SUA-1508, LC 9.5. All the parties in the proceeding apparently concur that HRI's annual updates may result in license amendments. *See* SRP, App. C at C-4; *see also* Transcript at 392, 399, 405, 407-09.

> Further, HRI's license requires it to return groundwater quality parameters to restoration goals and applicable standards. SUA-1508, LC 10.21. If 9 pore volumes proves insufficient to meet the goals, HRI will need to use more than 9 pore volumes, and the surety will be revised accordingly. If HRI objects to using a higher number of pore volumes, an alternative would be to seek a relaxation of the restoration standards specified in the license. The Staff and HRI agree that any such request would have to be in the form of a license amendment, where again the Intervenors would have the opportunity to intervene. *See* Transcript at 234, 239-40, 250-51.

[53] Actual surety arrangements need not be made until before operations begin. *See* 10 C.F.R. Part 40, App. A, Criterion 9; CLI-00-8, 51 NRC at 240 n.15. Surety for well fields is typically established as they go into productions. *See* SRP at 6-24. The amount of surety that must be retained must be sufficient at all times to cover the costs of decommissioning and reclamation of the "areas that are expected to be disturbed before the next license renewal." In the case of HRI, which has no immediate plans to begin operations, and, the NRC Staff has said, still needs to obtain "other regulatory agency permits . . . prior to operation," it is impossible to determine what areas are "expected" to be disturbed prior to the next license renewal. *See* Letter to

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continue to monitor and review safety concerns, including those brought to its attention through an adjudicatory proceeding.

IV. ANALYSIS OF LABOR AND EQUIPMENT ISSUES

A. Background

In LBP-04-3, the Presiding Officer found that two cost estimates in HRI's Restoration Action Plan required either modification or reassessment. First, the Presiding Officer found unacceptable HRI's estimated costs of the equipment necessary for reclamation. Specifically, he found that HRI improperly had assumed that "the major equipment" necessary for decommissioning would remain onsite, available for an independent contractor to use for decommissioning activities in the event HRI were to abandon Section 8 prior to the site's restoration. He therefore ordered that HRI obtain costs estimates from two or more independent contractors, average these, and submit them in an amended financial assurance plan, for NRC Staff approval. The Presiding Officer further ordered that in determining the equipment costs, "it

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Mark Pelizza (April 16, 2001) from Daniel Gillen, NRC, Re: Acceptance of Restoration Action Plan. It could well be years before HRI begins operations in Section 8. No operations have taken place since the initial license was issued 6 years ago. Under the circumstances, the Staff has taken a reasonable approach to require a surety update prior to the commencement of mining. *Id.*

cannot be assumed that the major equipment necessary for decommissioning is available."[54] The revised restoration estimates would have to include at least the cost of leasing the "major" equipment.

Second, the Presiding Officer found HRI's projected labor costs unacceptable. He concluded that HRI had not supported its assumption that an independent contractor would have laborers capable of performing multiple functions (i.e., wearing "multiple hats"). In the Presiding Officer's view, HRI had not complied with the language of Criterion 9, found in 10 C.F.R. Part 40, Appendix A, which directs licensees' cost estimates to "take into account [the] total costs that would be incurred if an independent contractor were hired to perform the decommissioning and reclamation work." He gave HRI a choice: either amend the estimated labor costs in the Restoration Action Plan to the level proposed by the Intervenors, or submit a revised plan based upon the averaged cost estimates from at least two independent contractors.

We granted HRI's petition for review of these two rulings because both involve questions on the proper interpretation and application of Criterion 9, which requires licensee decommissioning cost estimates to "take into account" the costs that "would be incurred" by an independent contractor hired to restore a site. In addition, the Presiding Officer's call for new cost estimates to include the costs of all

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[54] LBP-04-3, 59 NRC at 101.

"major equipment" appeared open to different interpretations on what would be considered "major" equipment. It was unclear, for example, whether this was to include the costs of replacing all existing wells, pumps, pipelines, and other stationary equipment.

On review, HRI and the NRC Staff argue that the labor and equipment assumptions are reasonable, supported by the record, and that the Presiding Officer has misapplied Criterion 9, or, as the Staff describes, "read too much into the generally-worded Criterion 9 provision."[55] The Intervenors argue that HRI and the Staff have ignored the plain language of Criterion 9, and that "when the plain language of a statute or regulation is clear, all inquiry as to its meaning must end there."[56] They stress that HRI's estimates are based on its own experience and costs, not on the costs of an independent contractor, and therefore do not comply with Criterion 9. We find that the "labor" and "equipment" rulings in LBP-04-3 warrant reversal. Below, we address the two issues in turn.

B. Labor Estimates

At the heart of the disputes over the labor cost estimates is how best to interpret the requirements of

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[55] NRC Staff's Brief on Labor and Equipment Issues (NRC's Initial Brief Labor/Equipment) (June 14, 2004).

[56] Intervenors' Response to HRI and NRC Staff's Initial Briefs on Review (Intervenors' Response Labor/Equipment) (July 12, 2004) at 9.

Criterion 9. We therefore begin with a look at the pertinent language of Criterion 9:

> [T]he licensee's cost estimates must take into account total costs that would be incurred if an independent contractor were hired to perform the decommissioning and reclamation work.

The terms of the regulation do not require that a licensee actually obtain cost estimates from an independent contractor, but they do insist that the estimates "take into account" the costs associated with hiring an independent contractor to restore a site. To better understand the intent of Criterion 9, it is helpful to look at the available NRC guidance documents on *in situ* uranium extraction facilities, including the NRC Staff's Standard Review Plan for license applications.

Although the SRP does not constitute a legally binding interpretation, the SRP explains that the purpose of the financial surety is to provide sufficient resources for reclamation of a site "by a third party, if necessary."[57] The SRP outlines contractor-related expenses that should be provided for in the surety, including additional estimates to cover contractor profit and overhead:

> All costs (unit and total) are to be estimated on the basis of third party, independent

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[57] SRP at 6-24.

> contractor costs (include overhead and profit in unit costs or as a percentage of the total).[58]

Thus, contractor overhead costs and profit are to be factored into the financial plan. They may be either calculated and added to the financial plan as separate, additional items, or "loaded" into the estimated hourly wage rates.[59]

Moreover, the SRP also states that applicants are to provide in the financial plan for project management costs. This category would cover such expenses as paying for the overall management of a restoration project, including engineering design and review, mobilization, quality control, and any other management-related costs that may not already be covered by other categories.[60] In addition, the financial plan should set aside a separate amount of funds to cover contingencies, or unforeseen expenses. By way of general guidance, the SRP notes that an acceptable "minimum" contingency figure would be 15% of the estimated restoration costs.[61]

As to how an applicant should base its cost assumptions, the SRP states that, "[t]o the extent possible," cost assumptions should be based on the applicant's "experiences with generally accepted industry practices," "research and development activities at the site," or "previous operating experience in the case of license renewal."[62] Unit costs, calculations, references, and the assumptions used in making the cost estimates are to be provided, however.[63]

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[58] *See id.*, Appendix C at C-5.

[59] *See id.*, Appendix C at C-4, C-1.

[60] *See id.*, Appendix C at C-4.

[61] *See id.*, Appendix C at C-4.

As a general matter, then, it seems neither unreasonable nor inconsistent with the SRP, for an applicant that has had experiences in the uranium recovery field – including experience in restoration activities – to draw upon its own prior experience as a basis in estimating restoration cost estimates. In all cases, the basis for any assumptions must be adequately described by the applicant and verified by the Staff, but the Commission sees no reason, *per se,* to bar an experienced applicant from relying at least partially upon its own knowledge and experience of restoration expenses. The Staff's review includes comparing proposed unit costs with standard industry cost guides, as well as consulting with local and state authorities on local and regional costs.[64]

Now we turn to the specific dispute over the labor positions proposed in HRI's Restoration Action Plan.

For the labor estimates, HRI's plan set forth eleven proposed positions. The salaried positions include Operations Manager, Environmental Manager, Radiation Safety Officer, Chemist, Senior

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[62] *See id.* at 6-24, 6-26.

[63] *See id.*, Appendix C at C-1.

[64] *Id.*, Appendix C at C-5; *see also* Transcript at 350-51.

Geologist, and Wellfield Foreman. Nonsalaried positions include Electrician, Plant Operator, Truck Driver, Wellfield Operator, and Pump Hoist Operator.[65] The financial plan lists estimated expenses associated with these positions, including salaries, wages, workmen's compensation, medical expenses, and payroll taxes.

Particularly at issue, however, are introductory statements in the financial plan's labor section, whereby HRI stated that the technical employees would wear "multiple hats":

> For the purpose of the Financial Assurance Plan, HRI assumed the employment of technical professionals whose expertise is needed on a limited basis during the restoration mode. Anticipated positions are listed in the Restoration Budget rows 1-15. However, to justify their full time status and utilize their time on the job, it is assumed that they are required to provide a multitude of services, i.e., every employee will be wearing multiple hats. As such, individual job descriptions are difficult.[66]

Nonetheless, the plan does go on to provide a summary of the tasks to be handled by each of the eleven budgeted positions. To give an example, we provide, below, a sample position description, that of the

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[65] Restoration Action Plan at E-2(d).

[66] *Id.*

Environmental Manager, which has the lengthiest job description:

> Environmental Manager. Responsible for the radiation health and safety, environmental compliance and quality assurance program at the Crownpoint Uranium Project. Supervise the Radiation Safety Officers to ensure that all radiation safety, environmental compliance and permitting/licensing programs will be conducted in a responsible manner and in compliance with all applicable regulations and permit/license conditions.[67]

In challenging the Restoration Action Plan, the Intervenors argued that HRI had underestimated the personnel requirements for wellfield and plant operators during the restoration period, and that "neither the State nor NRC can or should assume multiple responsibilities for individual employees."[68]

In addition, the Intervenors' expert claimed that it appeared that HRI was "planning its personnel needs around only one eight-hour shift," instead of a continuous 24-hour operation, which he stated is important to restore an *in situ* mine safely.[69] The cost estimates, he claimed, reflected only one 8-hour shift per day for the stated positions, not the three 8-hour shifts that would be needed for continuous operation. The expert therefore stated that if, as he suspected, HRI's cost estimates were based on only one 8-hour shift, then the labor costs needed to be tripled, to account for three shifts.[70] He also argued that HRI should have listed a full-time position for an operator of the brine concentrator and reverse osmosis units (two types of water restoration equipment), and indeed should have listed three such full-time operators, to cover three different 8-hour shifts.[71]

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[67] *Id.*

[68] Intervenors' Response to HRI's Cost Estimates and Restoration Action Plan (Intervenors' First Response) (Dec. 21, 2000), Ingle Affidavit at 20-21.

[69] *Id.* at 20-21.

HRI responded by stating that its listed personnel would be adequate to run operations 24 hours per day using only a single 8-hour shift. Its expert described how the restoration machinery is largely automated, and that therefore, at night, restoration operations could run unmanned with automatic shutdowns in the case of leaks or other equipment malfunction. He stressed that it was possible to assign multiple roles to individuals because of equipment automation. For similar reasons, he specified that HRI would not need a full-time operator for the reverse osmosis/brine concentrator equipment, and detailed the limited oversight necessary to operate and maintain these units.[72]

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[70] *Id.* at 22.

[71] *Id.*

[72] Reply of HRI to Intervenors Response to RAP (HRI Reply to Intervenors) (Jan. 22, 2001), Pelizza Aff. at 19-20, Van Horn Aff. at 4-6.

HRI's expert also said that the labor estimates were based on "actual operating experience in Texas, not conjecture."[73] He provided a chart comparing the labor positions proposed for Church Rock with the positions used for restoration work at two commercial mines in Texas, run by Uranium Resources, Inc., HRI's "sister company." An affidavit by the supervisor of operations at URI's Texas sites stated that "in the real world," the proposed staffing levels for Church Rock "are a fact of life," and that "through the use of technology" greater staffing levels were not necessary.[74] In statements before the Presiding Officer, the NRC Staff expert concurred that it was "reasonable to assume that there will be some overlap of duties" for workers involved in restoration because "[y]ou're probably not going to have one guy just sitting out there turning a well field valve and then not do something else that doesn't occupy his time full time."[75]

In LBP-04-3, the Presiding Officer rejected the Intervenors' argument that HRI needed to triple its proposed personnel to account for three 8-hour shifts instead of a single 8-hour shift. He agreed with HRI that the proposed budget for one 8-hour shift per day would be "sufficient to operate the decommissioning project around the clock" because most of the machinery is largely automated:

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[73] *Id.*, Van Horn Aff. at 6.

[74] *Id.*

[75] *See* Transcript at 349-50. Citing the example of a contractor hired to restore a site in Wyoming, the Staff's expert said that "the most likely guys that are going to come in and restore [a] well field are other uranium *in situ* leach miners," already familiar with restoration operations. *See id.*

> HRI's explanation of site restoration operating continually by using a combination of manpower and machine is satisfactorily supported in the record before me. I find that HRI's intention to rely on automated machinery with automatic shutdowns to supplement its workforce, along with a budget for a single 8-hour shift per day is sufficient.[76]

Nonetheless, however, the Presiding Officer found that the record did not support "HRI's decision to require employees to wear 'multiple hats,'" and that HRI's assumption of "multi-hatted" employees violated Criterion 9, which requires surety estimates to be based on the total costs of an independent contractor completing the restoration:

> HRI . . . has put forth no persuasive evidence that supports its assumption that an independent contractor will assign one employee to several tasks in the same manner as HRI intends to manage its employees. . . . Given that Criterion 9 specifically requires that the surety amount be based upon the total costs of an independent contractor decommissioning the site and the RAP, as it currently stands, contains no independent contractor

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[76] LBP-04-3, 59 NRC at 102.

> cost estimates, I find that HRI has failed to meet the requirements of Criterion 9.[77]

On review, the NRC Staff argues that the Intervenors provided no evidence that a uranium mining operation, "staffed by personnel qualified to fill the 11 labor categories identified by HRI . . . would need additional personnel in order to adequately restore a wellfield."[78] Rather than addressing the eleven labor positions identified by HRI, the Intervenors "instead pursued their claim that HRI improperly failed to budget for restoration operations on a 24-hour basis," the Staff claims.[79]

We agree. First, notwithstanding the Presiding Officer's contrary decision, in our view there is sufficient evidence in the record to assume that an independent contractor in the *in situ* leach field may have employees carry out related distinct tasks.[80] Moreover, as we stated in our order granting review, what is at issue is the adequacy of the eleven proposed positions for the restoration work. Thus, the key question is whether "the proposed labor categories appear reasonably sufficient in number (e.g., person-hours) and expertise for the proposed restoration tasks and volume of restoration work."[81]

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[77] *Id.* at 103. Curiously, the Presiding Officer did not rule explicitly on the issue of whether there needs to be a full-time reverse osmosis/brine concentrator operator. Perhaps this was an issue left to be resolved by the independent contractor estimates that the Presiding Officer called for. But the rationale that the Presiding Officer accepted for the sufficiency of the single 8-hour shift – machine automation – is precisely the same rationale offered by HRI for why no full-time reverse osmosis/brine concentrator operator was needed. HRI provided detailed, unrebutted description of the automated nature of this restoration equipment. In their appellate briefs, none of the parties specifically addresses the operation of the reverse osmosis/brine concentrator equipment.

[78] NRC Staff's Initial Brief Labor/Equipment Brief at 13.

[79] *Id.* at 14.

HRI set forth a summary of the types of tasks that each position would carry out. On their face, the position descriptions do not appear unreasonable or unduly impractical. Other than their conclusory claim that the NRC should not assume that a contractor would have an employee with "multiple responsibilities," the Intervenors never suggested which of these positions would be unworkable as described. And apart from their initial claim – rejected by the Presiding Officer – that two additional labor shifts would be necessary, they never suggested what additional number of employees might be required to complete the proposed restoration work.

At best, the Intervenor's expert offered some general anecdotal statements that "multiple hats does not work when you hire a third party from reclamation experience [in] Wyoming," and the vague hypothetical example that contractors "may actually need to have one person, a geologist, who that's what they do, and somebody else who maintains the brine concentrator."[82] (HRI's plan does not propose having a geologist regularly in charge of maintaining the brine concentrator.) Simply put, in no respect did the Intervenors provide a credible challenge to the proposed labor positions in the Restoration Action Plan.[83]

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[80] *See supra* pp. 598-600. Criterion 9 does not require us to assume or plan for the least experienced or least efficient independent contractor.

[81] CLI-04-14, 59 NRC at 251-52.

Moreover, the Intervenors' general "multiple hats" argument was, as the NRC Staff states, connected to their more focused claim that HRI should have provided for three 8-hour labor shifts instead of a single shift.[84] HRI provided the identical rationale for the Restoration Action Plan's proposed single 8-hour labor shift and for its assumption that employees would be capable of carrying out multiple tasks. Both assumptions rely upon machine automation. But while the Presiding Officer found reasonable HRI's argument that a "combination of manpower and machine" would permit operations 24 hours per day with only a single 8-hour labor shift and without constant manning and supervision of the restoration equipment, he did not explain why machine automation would not, in similar fashion, permit employees to handle more than one task.[85]

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[82] Transcript at 346.

[83] In a separate argument, the Intervenors claimed that HRI's proposed salaries and wages were underestimated if one compared the dollar figure HRI proposed with the dollar amount spent at a restoration project in Fernald, Ohio, assuming that labor costs are "linearly" related to gallons of water processed. This salary argument, however, did not claim that the Fernald project required more labor positions for similar restoration work than that proposed for Section 8. Indeed, the argument appears to be based on an attempted rough comparison of labor positions "comparable" to those HRI proposed for Section 8. Nor is it even clear from the information provided how many workers there were at the Fernald project; only labor categories are listed, not how many employees may have been hired for each position. *See* Intervenors' First Response, Abitz Affidavit at 13-14.

[84] *See* Intervenors First Response, Ingle Aff. at 20-21.

At bottom, the NRC seeks to verify whether there is a reasonable amount of labor proposed to complete the various aspects of a restoration project. The Staff thus reviews the kinds and numbers of experts and laborers proposed to perform the tasks and processes that will be necessary to complete the restoration. This includes examining the person-hours of labor proposed and the unit cost estimates proposed. Beyond that, the Staff does not speculate on how a contractor may allocate particular duties among a proposed labor force, so long as individuals tasked with a job are qualified to perform it, and the proposed labor force appears sufficient in number and expertise to complete the job. It may well be that one contractor may hire two or three individuals on a limited, part-time basis to perform single tasks, and another contractor may find it efficient and workable to hire and train one employee full-time to handle both duties. In the end, it is unclear whether the number of person-hours listed for the restoration work would be significantly different. In any event, here the Intervenors raise only generalized, conclusory allegations about the reasonableness of HRI's labor proposal.

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[85] HRI provided unrebutted evidence on the highly automated nature of the reverse osmosis and brine concentrator units, two major kinds of water restoration equipment. HRI's expert explained, for example, that reverse osmosis units are so automated they essentially "run themselves and require only periodic shutdown and maintenance," i.e., cleaning of the membranes about every 4 weeks, a 6-hour process. "[P]er the manufacturer," the operations of the brine concentrator require only about 4 hours of "general overview" per shift, HRI's expert described, explaining that such overview can be part of the shift operator's normal routine. HRI Reply to Intervenors, Pelizza Aff. at 20, Van Horn Aff. at 4-6.

It is true, as the Intervenors claim and as the Presiding Officer stressed, that HRI "did not identify any independent contractor whom it contacted for its estimate," and that HRI did not "identify any independent contractor on whose performance at other ISL sites its estimate was based."[86] But the plain terms of Criterion 9 do not *require* applicants to obtain information directly from an independent contractor, or to seek out and base cost estimates on the actual costs that a specific contractor spent on a project. Cost estimates must be explained and reasonable, but they need not come directly from an independent contractor. Such estimates need only "take into account" reasonable, commonsense judgments on costs one "would" incur in hiring an independent contractor.[87] Nor is it the case, as the Presiding Officer seemingly thought, that HRI presented "no information" at all associated with an independent contractor performing restoration. HRI's plan does provide for various contractor-associated expenses, such as contractor overhead and profit, etc. Indeed, the NRC Staff required HRI to revise its general contingency figure from 15% to 25% for several dirt-work and demolition activities to account for several unpredictable factors, including the Staff's concern that labor rates for earthwork personnel can be highly variable.[88]

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[86] Intervenors' Response Labor/Equipment at 14.

In short, we agree with the NRC Staff that the Presiding Officer, in demanding that HRI now seek out independent contractor estimates from two or more contractors, "read too much" into the requirements of Criterion 9. Accordingly, we reverse LBP-04-3's ruling on the labor cost estimates.

C. Equipment

The Presiding Officer found HRI's equipment cost estimates unacceptable because HRI had not budgeted for the purchase or rental of "major" equipment.[89] (Such "major" equipment presumably would include the brine concentrator and reverse osmosis units, two kinds of water restoration equipment). The Presiding Officer thus rejected arguments by HRI and the NRC Staff that the water restoration equipment likely would remain onsite and available for an independent contractor to use if HRI abandoned the site prior to restoration. The Presiding Officer based his reasoning on Criterion 9's requirement that an applicant "take into account" the costs that would be incurred in hiring an independent contractor. He also cited evidence presented by the Intervenors's expert, indicating that at the Bison Basin restoration project in Wyoming, new equipment, such as new reverse osmosis units, had to be ordered for site reclamation. Further, he expressed concern that in the case of a declared bankruptcy, the equipment might be seized and removed by creditors.

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[87] *See* 10 C.F.R. Part 40, Appendix A, Criterion 9.

[88] *See, e.g.,* Letter to Philip Ting, NRC, from Mark Pelizza, HRI, Re: Request for Additional Information (Mar. 16, 2001), at 5; Transcript at 351; RAP § 9.

[89] *See* LBP-04-3, 59 NRC at 99-101.

In addressing this novel equipment question, we begin with a few general observations. First, under Criterion 9, the NRC seeks to assure that "sufficient" resources will be available for reclamation. To further this aim, Criterion 9 calls for the conservative assumption that restoration will need to be conducted by a third-party contractor, and consequently, as we noted above, it has been the Staff's practice to insist that licensees set aside significant additional amounts in the surety estimate to pay for the potential expenses associated with hiring a third party, i.e., contractor overhead, profit, management costs, etc., as well as additional funding for contingencies. These are all some of the ways in which the NRC seeks to ensure an adequate surety to cover independent contractor costs.

Financial assurance plans, however, are not intended to cover every imaginable circumstance. We do not, for instance, direct licensees to assume that there will be an accident – requiring special restoration activities – and to provide in the financial plan an additional category of funds specifically for accident-related restoration. If Criterion 9 were interpreted to demand the *most* conservative prediction conceivable, based on a "worst-case" type of scenario, the NRC would, as a general matter, unnecessarily and unduly burden the great majority of licensees. The cost of such an approach would significantly outweigh the possible benefit.

On the equipment issue before us, Criterion 9 does not explicitly address equipment, and so we turn again to the available NRC guidance on *in situ* uranium extraction reclamation plans. In the Standard Review Plan for license applications, we find two conflicting provisions. On one hand, the SRP states generally that equipment owned by the Licensee should not be credited in the estimate to reduce cost calculations.[90] But more specifically, in the section on cost estimates for groundwater restoration, the SRP provides that the capital costs of "water treatment" equipment – this would include reverse osmosis and brine concentrator units – need *not* be included in the reclamation plan. Because this equipment is used in the initial stages of operations, the SRP assumes that the capital costs of the equipment will have been paid off prior to the restoration phase:

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[90] *See* SRP, Appendix C at C-5.

> The water treatment equipment used during the uranium recovery phase of the operation is generally suitable for the restoration phase. The capital cost of this equipment is usually absorbed during the initial stages of the operation, leaving only the costs of operation, maintenance, and replacement filters for the restoration phase.[91]

Identical guidance is provided in an NRC Staff technical position paper on financial assurance for uranium recovery facilities.[92] Generally speaking, then, a financial assurance plan should account for the cost to obtain the equipment that an independent contractor would need, but the NRC's long-held assumption has been that the water treatment equipment purchased prior to operations would remain available for the decommissioning phase. HRI brought this provision to the Presiding Officer's attention, but the Presiding Officer did not address it in his financial assurance decision.[93]

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[91] *Id.*, Appendix C at C-3.

[92] *See* Technical Position on Financial Assurances for Reclamation, Decommissioning, and Long-Term Surveillance and Control of Uranium Recovery Facilities (Oct. 1988) at 22.

[93] *See, e.g.*, HRI's Reply to Intervenors at 16; Transcript at 340.

Of course, even if one assumes that the capital costs of the water treatment equipment have been fully absorbed, there still is, conceivably, the possibility that in the event a licensee declares bankruptcy, creditors could file a claim seeking removal and sale of the equipment, and a bankruptcy court conceivably could order the equipment's removal. Nonetheless, the Commission does not believe that this possibility warrants – as a general matter – requiring that all uranium recovery licensees provide for the costs of obtaining new water treatment equipment. Reverse osmosis and brine concentrator units are "fixed" or bolted-down capital equipment that likely would require notable expenditures of time and money to decontaminate, making it less likely that creditors would seek to remove them. The same is true for other permanently-in-place equipment installed prior to operations, i.e., well-field pipes and pumps.

If, as the SRP details, restoration will require "additional [water treatment] equipment," such as additional reverse osmosis or brine concentrator units, beyond that purchased and installed during the operational phase, the financial plan should provide for the cost or rental of these additional needed units.[94] Similarly, if water treatment equipment is "near the end of its serviceable life," the surety should be adjusted to account for the equipment's replacement costs.[95] There will be a yearly opportunity – the required annual surety updates – to monitor and assess whether water treatment and other permanent equipment – e.g., pipes and wells – necessary for restoration may be in deteriorating condition. Further, HRI's license requires that a minimum 15% of restoration costs be added to and maintained in the surety to cover contingencies, which would include unforeseen expenses associated with equipment needs.[96]

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[94] *See* SRP, Appendix C at C-3.

The Staff evaluates financial plans on a case-by-case basis, and thus can require special measures of particular licensees where warranted, whether at the initial surety stage or later, if changes in operations or other events bearing on decommissioning costs occur. Required annual surety updates provide a flexible and continuous means to allow for NRC-required "[a]djustments to reclamation plans."[97]

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[95] *Id*

[96] *See* SUA-1508, LC 9.5. Pursuant to the SRP, HRI's plan provides for the operating and maintenance expenses associated with the water treatment equipment, including replacement of filters, membrane, and instruments. The plan also provides for the maintenance and potential replacement of submersible pumps and motors, plant and field piping and valves. *See* RAP at E-2(d). The Intervenors take issue with HRI having based these maintenance estimates on HRI's own operating experience, but again, we do not read Criterion 9 to bar an applicant outright from drawing upon its own experiences to justify otherwise reasonable assumptions.

[97] *See* SRP, Appendix C at C-4.

Criterion 9 does not require an initial surety that covers every theoretical possibility. And it does not, as the Intervenors claim, contemplate annual surety adjustments "only when changes in operations occur."[98] The plain terms of the regulation itself clearly provide that the updates are intended to cover "any . . . conditions" that may affect the cost estimates. Moreover, there are significant practical considerations in the case of HRI's license. We could be years away before any operations begin at Section 8, and a number of details of the project – which may bear on labor and equipment needs – will not be known until operations begin. Thus, the annual surety reviews are a practical and *necessary* means for assuring an adequate financial surety for Section 8, as well as for every licensed site.[99]

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[98] Intervenors' Response to HRI's and Staff's Briefs (Labor/Equipment) (July 12, 2004) at 19.

[99] We conclude with an additional observation not raised on review by the Intervenors, but which merits the NRC Staff's future attention. In LBP-04-3, the Presiding Officer rejected the Intervenor argument that HRI's plan failed to provide for contract administration expenses (project management). The Presiding Officer accepted HRI's explanation that the plan already contains an amount covering "contingency/profit." However, HRI's plan apparently conflates the "contingency/profit" category and the project management expenses category. Moreover, contractor profit and the general "contingency" category are typically set forth separately. HRI's combined figure leaves unclear how much has actually been proposed for each of these categories. We therefore expect the NRC Staff, at the next annual surety update for Section 8, to reexamine and clarify the particular amounts estimated to cover contractor profit, project management, and contingencies.

IV. CONCLUSION

For the reasons given in this Order, the Commission *affirms* LBP-03-4's ruling on the pore volumes issue, and *reverses* the rulings on the labor and equipment issues.

IT IS SO ORDERED.

For the Commission

ANNETTE L. VIETTI-COOK
Secretary of the Commission

CLI-01-4

Cite as 53 N.R.C. 31 (2001)

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:
Richard A. Meserve, Chairman
Greta J. Dicus
Nils J. Diaz
Edward McGaffigan, Jr.
Jeffrey S. Merrifield

IN THE MATTER OF HYDRO RESOURCES, INC. — No. 40-8968-ML
(P.O. Box 777, Crownpoint, New Mexico 87313) — January 31, 2001

MEMORANDUM AND ORDER

I. Introduction

Hydro Resources, Inc. ("HRI") is seeking a license for a proposed multiple-site *in situ* leach mining project in New Mexico. The NRC staff granted the license, but several intervenors have challenged its validity in an adjudicatory proceeding initiated under 10 C.F.R. Part 2, Subpart L. Our decision today follows a series of other appellate decisions in this proceeding. *See, e.g.*, CLI-00-08, 51 NRC 227 (2000) (financial qualifications); CLI-00-12, 52 NRC 1 (2000) (groundwater, radioactive air emissions, and technical qualifications). Today we grant review of, and reverse, LBP-99-40, 50 NRC 273 (1999), in which the

Presiding Officer placed the remaining portions of this proceeding in abeyance. We lift the abeyance order and direct that the proceeding resume within six months, unless HRI decides to limit its license to the already-adjudicated "Church Rock Section 8" site. In addition, we grant review of, and affirm, LBP-99-30, 50 NRC 77 (1999), which addressed National Environmental Policy Act (NEPA) and environmental justice concerns.

II. Abeyance Order (LBP-99-40)

A. Background

HRI applied for and received an NRC materials license to conduct *in situ* leach mining at four sites in New Mexico: Sections 8 and 17, located in Church Rock, New Mexico, and the Unit 1 and Crownpoint sites, located in Crownpoint, New Mexico. HRI proposed and the license authorizes a phased development of the properties. For example, HRI is to begin uranium recovery operations in Church Rock Section 8, and may not proceed to inject lixiviant at either the Unit 1 or Crownpoint sites without first conducting an acceptable groundwater restoration demonstration at the Church Rock site. *See* SUA-1508, Section 10.28. The license, granted on January 5, 1998, is only for a five year term, and thus due to expire on January 5, 2003, unless renewed.[1] Intervenors

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[1] HRI's leach mining activities are anticipated to occur over a 20-year period. The NRC staff, however, proposed taking a phased approach to licensing, given that HRI intended to

(Continued on following page)

Eastern Navajo Diné Against Uranium Mining ("ENDAUM"), Southwest Research and Information Center ("SRIC"), Marilyn Morris and Grace Sam challenge the validity of HRI's license.

The proceeding has proved quite complex, due both to its large number of technical issues and to unprecedented legal questions raised by an unusual procedural format. The unusual procedural format took form soon after the Presiding Officer granted the intervenors' requests for hearing. HRI responded by informing the Presiding Officer that "at this time" it only had the intention to mine in Section 8, and had "made no decision to proceed with subsequent sections of the Project." HRI's Request for Bifurcation (June 4, 1998) at 2-3. Any such decision on the other project sites was "potentially years away," HRI explained. *Id.* at 3. "Therefore," HRI concluded, "petitioners' concerns regarding Section 17, Crownpoint, and Unit 1 (which comprise nearly all of the issues raised by petitioners) are not ripe for consideration." *Id.*

HRI then requested that the Presiding Officer "bifurcate" the proceeding, to resolve only those issues concerning Section 8 and to hold in abeyance all issues relating to the other project sites "unless

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develop the project incrementally, "the project's potential area of disturbance is vast, and the resource methodologies and interpretations could change during the proposed 20-year license term." CLI-98-8, 47 NRC 314, 318 (1998).

and until HRI is prepared to proceed with those phases." *Id.* Because HRI had not yet made any final decision on whether to proceed with Section 17, Unit 1, or Crownpoint, and "probably" would not make a decision for years, HRI argued that it made "little sense" to proceed with a hearing on those sites. *Id.* at 13. Instead, HRI suggested, the Presiding Officer and all parties would benefit by conserving resources now and later holding a hearing on the other sections only "if and when" HRI decided to proceed with them. *Id.* at 14-15. Petitioners would not be deprived of any hearing rights, HRI argued, because they could contest later phases of the project as HRI decided to proceed with them. Bifurcation also would "allow the parties and the Presiding Officer to review the later phases of the project on a more complete and informed record," HRI contended. *Id.* at 14.

In September 1998, the Presiding Officer granted HRI's bifurcation request, and thus limited the first phase of the hearing to those issues specific to Section 8 of Church Rock. The Presiding Officer ruled that the intervenors would be "prohibited, on the ground of ripeness, from making detailed challenges to parts of the project that have been scheduled many years into the future and that will be completed only if conditions in the uranium market permit profitable mining at that time." Memorandum and Order (Sept. 22, 1998) at 2 (unpublished). Accordingly, those issues involving only section 17 of Church Rock, the Unit 1 site, or the Crownpoint site were not to be included in this first phase of the hearing. In a concession to the intervenors, the Presiding Officer did, though, permit immediate litigation (in Phase I) on "any issue that challenged the [overall] validity of the license issued to HRI." This ambiguous statement apparently led to some confusion over the intended scope of the Phase I hearing.

Intervenors ENDAUM and SRIC sought to have the Presiding Officer's bifurcation order certified to the Commission for immediate appellate review. According to the intervenors, bifurcation violated both the AEA, by depriving them of a timely hearing on all material issues, and NEPA, by preventing the project's environmental effects, cumulative impacts, and reasonable alternatives from being examined as a whole. The intervenors claimed that the Presiding Officer had illegally segmented into smaller units a project that had been proposed, described, and licensed as a single project and, by addressing Section 8 separately, he would risk taking a distorted view of the rest of the project. *See* ENDAUM and SRIC's Request for Directed Certification at 3, 7.

HRI and the NRC staff supported the Presiding Officer's bifurcation decision, arguing that it was merely a scheduling order setting up a logical phased approach to the hearing. "It is reasonable for an inquiry into the acceptability of a project that will proceed in stages to consider component mining areas before considering the cumulative impacts of the entire project," the staff stated. NRC Staff Response to ENDAUM and SRIC Request for Directed Certification of Bifurcation Order (Oct. 8, 1998) at 8.

The Presiding Officer denied the request for directed certification. He said that the first phase of the hearing therefore would be limited to issues relating "to the invalidity of the entire license or to operations on Church Rock Section 8." Once this first phase of the hearing was completed, the Presiding Officer would then "determine whether to proceed immediately with the remainder of the case or to wait until there is greater confidence that HRI will undertake injection mining at the other sites." Memorandum and Order (Oct. 13, 1998) at 4.

ENDAUM and SRIC petitioned the Commission to grant interlocutory review of the bifurcation order. The Commission denied review. *See* CLI-98-22, 48 NRC 215 (1998). The Commission stated:

> The Intervenors' concern that the Presiding Officer's bifurcation order will leave some vital issues unaddressed need not be resolved now. The nature of undecided questions will be clearer, and the Presiding Officer (and ultimately the Commission itself) will be better positioned to assess whether additional issues require immediate adjudication, after the parties submit their initial presentations and the Presiding Officer issues his initial decisions. It would be unproductive and premature for the Commission to consider now whether litigation on some questions can be suspended indefinitely given that the Presiding Officer himself has not yet decided to do so and in a situation where additional

> developments may shed more light on the question.

48 NRC at 217-18.

The Presiding Officer concluded the first phase of the hearing on August 20, 1999. *See* LBP-99-30, 50 NRC 77 (1999). At that point, he ordered the parties to file a proposed schedule for the remainder of the case. HRI instead filed a motion to place in abeyance all issues concerning section 17, Unit 1, and Crownpoint. HRI stated that it did not intend to proceed with operations at the other sections "at this time." The Presiding Officer agreed with HRI that it would be wasteful to litigate issues related to the other sections if there was no present intention to mine them. He agreed, therefore, to hold the rest of the proceeding in abeyance. *See* LBP-99-40, 50 NRC 273 (1999). He imposed, however, the condition that HRI give 8-months advance notice prior to undertaking any mining activity on any of the three sections that had not yet been subject to hearing.

B. Parties' Arguments Before the Commission

In petitions for review filed before the Commission, Intervenors ENDAUM, SRIC, Marilyn Morris, and Grace Sam challenge the Presiding Officer's decision to hold the remainder of this proceeding in abeyance. The intervenors claim that placing the hearing in abeyance violates the AEA and the Administrative Procedure Act, which require hearings to be conducted within a reasonable time. The intervenors argue that "[p]ostponing the conclusion of a hearing for an unlimited period, simply to serve the convenience of one of the litigants when a license has been granted and all issues are ready for adjudication," exceeds any legitimate policy rationale for a "phased hearing." ENDAUM and SRIC Petition for Interlocutory Review of Oct. 19, 1999 Order (Nov. 8, 1999) at 7 n.7. *See also* Morris and Sam's Petition for Review of Oct. 19, 1999 Order (Nov. 8, 1999) at 7-10.

The intervenors also claim that holding the proceeding in abeyance violates NEPA. The gist of the intervenors' NEPA argument is as follows:

> Regardless of whether the Staff's FEIS considered the Crownpoint Project as a whole, the crucial fact remains that the Presiding Officer has not considered the project as a whole in this adjudicatory proceeding. . . . This defeats NRC regulations requiring that the FEIS must 'accompany the application . . . through, and be considered in, the Commission's decision making process.' Here, the FEIS as a whole has *not* accompanied the Presiding Officer's decision making process, nor is it likely to. . . . Instead, only some pieces of the FEIS have been reviewed by the Presiding Officer, thus guaranteeing that the FEIS will be reviewed by the Commission in piecemeal fashion.

ENDAUM/SRIC Petition at 9, referencing 10 C.F.R. § 51.94. The intervenors further argue that the abeyance order violates their due process rights under the Fifth Amendment of the U.S. Constitution to a prompt hearing on their health, safety, and environmental concerns. *Id.* at 8 n.8.

In their repeated objections to both the initial "bifurcation" order and to the later order holding the hearing in abeyance, the intervenors have stressed that these decisions have severely prejudiced them in this proceeding. They state that "[t]he prejudice to the Intervenors is all the more severe in light of the fact that HRI already has the license: HRI now has a tremendous incentive to 'wait out' the Intervenors. If, at some point, the Intervenors are unable to maintain their readiness to resume the litigation, HRI will have *carte blanche* to commence mining, without any further hearings." *Id.* at 5.

HRI and the NRC staff oppose Commission review of the abeyance decision. Both claim that because HRI has no immediate plans to mine Section 17, Unit 1, or Crownpoint, it would be premature and wasteful to resume the proceeding. Both reiterate their earlier arguments that the abeyance decision is merely a scheduling order and reflects a sensible decision to hold off additional litigation until the issues involving the other sites "ripen" sufficiently for hearing. *See* HRI Opposition to Marilyn Morris and Grace Sam Petition for Review (Nov. 23, 1999) at 7; NRC Staff's Response to ENDAUM and SRIC's Petition for Interlocutory Review (Nov. 23, 1999) at 6 and n.3.

There is no NEPA violation, HRI and the staff maintain, because the FEIS assessed the project in its entirety, and thus there already has been a proper NEPA evaluation of the potential impacts at all the proposed sites. "Once an adequate EIS covering an entire project is issued, as is the case here, the project may be completed in stages," the staff stresses. NRC Staff's Response to Morris's and Sam's Petition for Commission Review (Nov. 23, 1999). The staff and HRI argue that the phased development – and concomitant phased adjudicatory review – of the project does not violate NEPA, the AEA, or the APA.

The Commission has reviewed all the parties' briefs and grants review of LBP-99-40. No further briefing on the bifurcation/abeyance issues is necessary. The extensive record accumulated in this proceeding suffices for the Commission's review of LBP-99-40. Our careful review of the record leads us to reverse LBP-99-40, both on the ground of expeditious case management and on the ground that the abeyance order imposes an unacceptable prejudicial burden on the intervenors.

C. Analysis

The Commission has a "long-standing commitment to the expeditious completion of adjudicatory proceedings." *See Statement of Policy on Conduct of Adjudicatory Proceedings*, CLI-98-12, 48 NRC 18, 24 (1998) ("*Policy Statement*"). The objectives of our adjudicatory procedures and policies are three-fold:

"to provide a fair hearing process, to avoid unnecessary delays in the NRC's review and hearing processes, and to produce an informed adjudicatory record that supports agency decision-making on . . . public health and safety, the common defense and security, and the environment." *Id.* at 19. With these policy goals in mind, we reverse LBP-99-40.

The NRC staff has granted HRI a single license covering four sites. The intervenors challenge the license's validity at all four sites, but thus far our adjudicatory process has considered just one, the "Church Rock Section 8" site. Below we direct resumption of the Subpart L hearing process to consider the intervenors' arguments on all sites. The hearing process should resume approximately six months from issuance of this decision – unless HRI chooses to accept an amendment limiting its license to the already-litigated Section 8 site. It is neither sensible nor fair to leave HRI's full license intact while we postpone indefinitely a resolution of the intervenors' challenge to it.

1. Indefinite Delay

HRI defends the abeyance decision as a resource-saving measure. Yet it is far from clear that NRC time and resources will be saved by keeping this proceeding lingering indefinitely on our docket. This is not a simple case that parties and adjudicators may easily pick up and resume years down the road. The case record is voluminous, the legal and technical arguments multifaceted and difficult. An extensive body of information – both technical and legal – already has entered the record. A lengthy delay in resuming the HRI hearings means that years from now the Commission, the agency Presiding Officers, and the NRC staff, not to mention HRI itself and the intervenors, will need to begin again virtually from scratch to acquaint themselves with the disparate details of this case. *See* HRI's Request for Bifurcation (June 4, 1998) at 13 (HRI says it will likely take "years" to decide whether to mine non-Section 8 sites).

The NRC staff *already* has spent considerable time – spanning some 6 years – reviewing HRI's license application for *in situ* leach mining at all four sites for which a license was requested. Were HRI now to disclaim any intent to proceed beyond Church Rock Section 8, all site-specific issues on the other three sites would become moot. But HRI has not taken the step of requesting that its license be amended to reduce the scope of authorized activities. Mindful of HRI's current – and possibly future – intention of only mining Section 8, the Commission a while ago explicitly offered HRI the option of seeking to reduce the scope of its license. *See* CLI-00-8, 51 NRC 227, 243 (2000). HRI, however, has not indicated any intent to do so. With HRI uncertain about its future intentions, the Commission simply cannot assume that HRI will not seek to mine beyond Section 8.

HRI's indecision should not dictate the scope and timing of the hearing process. HRI holds, in effect, a four-site license, but the adjudication has focused on just one site, Church Rock Section 8, with the remainder placed on hold indefinitely. With the proceeding held in abeyance, not only must the intervenors "stand at the ready" to resume the hearing, perhaps even a decade or more from now, but so must the Commission. Like the intervenors, the Commission has no sense of when HRI will decide whether to mine in the other three project sites. Our ability to plan and allocate resources for adjudicatory proceedings is hindered by having a highly complex proceeding lurking on the agency case docket, pending on a timetable to be triggered only by, and thus subject to the exclusive knowledge and control of, the licensee.

The Presiding Officer's abeyance decision yields the curious scenario in which a hearing on the issued license is unlikely to be resumed, let alone completed, prior to the end of the original license term, which concludes January 2003. This is hardly the result contemplated by our hearing policies which seek "to instill discipline in the hearing process and ensure a prompt yet fair resolution of contested issues in adjudicatory proceedings." *See* Policy Statement, CLI-98-12, 48 NRC at 19. Nor can it be the result contemplated by our Subpart L hearing procedures, which envisioned more expedient proceedings "involv[ing] less . . . delay for parties and the Commission," and otherwise sought to further the Commission's interest in achieving "regulatory finality" – resolution – of materials licensing proceedings. *See* Final Rule, Informal Hearing Procedures for Materials Licensing Adjudications, 54 Fed. Reg. 8,269, 8271, 8275 (Feb. 28, 1989).

In short, as a matter of sound case management, we cannot abide a situation where a license is issued but contested issues lie fallow without resolution for years. It is sensible to decide the most time-sensitive issues first, as the Presiding Officer did here when he examined Section 8-related issues initially, but it is unacceptable to simply decline to reach other questions about an already-issued license. Contrary to the Presiding Officer's views in this case, those questions are "ripe" now.[2]

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[2] HRI has suggested that all issues pertaining to Section 17, Unit 1, and Crownpoint are not "ripe" for hearing because additional detailed information on these sites will not be known until mining activities have begun. The Commission recognizes that there is a level of technical specificity that cannot be known prior to the commencement of ISL mining activities, and that certain issues may appropriately be left for post-licensing verification, particularly under a performance-based license. Nonetheless, there no doubt remain a number of questions that can be subject to hearing. Intervenors may, for instance, challenge the sufficiency of the information HRI submitted for licensing. *See, e.g.*, CLI-00-8, 51 NRC 227 (2000) (where Commission found that requisite financial assurance plan should have been provided with license application). Particular license conditions also might be subject to challenge. *See, e.g.*, CLI-00-12, 52 NRC 1, 6 n.4 (2000) (where Commission stated that in subsequent hearing on other three sites intervenors may raise

(Continued on following page)

2. Fairness to the Parties

Not only our commitment to expeditious decisionmaking but also our commitment to treat all parties fairly causes us to set aside the Presiding Officer's abeyance decision. To judge the fairness question, it is helpful to look back at the early portions of the record and to understand how the intervenors first entered the hearing process and gained admission to the proceeding. Back in 1988, HRI's original license application was to construct and operate mining facilities only at its Church Rock site in McKinley County, New Mexico. The following year HRI amended its application to include uranium recovery processing at an existing mine facility in Crownpoint, New Mexico. HRI later acquired mineral interests on two lease areas in the Unit 1 and Crownpoint sites. In April and July 1992, respectively, HRI again amended its application to include ISL mining at the Unit 1 and Crownpoint sites.

During these years when the number of sites covered by the application grew, HRI requested that the staff defer review of the license application. HRI was uncertain about whether to proceed with the proposed project, given a tentative uranium market. In 1992, HRI decided to proceed with its license application covering the Church Rock, Unit 1 and Crownpoint sites, and the NRC staff resumed its

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their concerns about secondary groundwater restoration standard for uranium).

review of the application. *See* "Draft Environmental Impact Statement," NUREG-1508 (Oct. 1994) ("DEIS") at 1-3.

The NRC staff completed a Draft Environmental Impact Statement (DEIS) in October 1994. The DEIS covered all of the proposed sites: Church Rock, Unit 1, and Crownpoint. Soon after, the NRC staff published in the *Federal Register* a "Notice of Availability of Draft Environmental Statement and Notice of Opportunity for Hearing." 59 Fed. Reg. 56,558 (Nov. 14, 1994). The intervenors reviewed the DEIS and timely submitted requests for hearing. Their understanding was that any hearing that might be granted would include all of the proposed project sites. Accordingly, among their submitted Areas of Concern were numerous issues that pertained essentially to the Crownpoint or Unit 1 sites. There was no indication at the time that HRI did not intend to go forward with all sites. On the contrary, HRI's pleadings referred to a plan to install and operate the Churchrock, Unit 1 and Crownpoint mines.

Without ruling on the intervention petitions, the Presiding Officer in September 1995 stayed the proceedings pending completion of the staff's review of the license application and the staff's issuance of the Final Environmental Impact Statement (FEIS). As the Presiding Officer explained, the FEIS and the staff's decision whether to grant or deny the license would be significant components of the hearing file. "Because the hearing file forms the basis upon which potential litigants contest the licensing action," the

Presiding Officer decided to wait until the file was complete before going forward with the proceeding. *See* Memorandum and Order (Sept. 13, 1995).

In March 1997, the Staff issued the FEIS, which describes the license application and project as encompassing the Church Rock, Unit 1, and Crownpoint sites. In December 1997, the staff issued its Safety Evaluation Report (SER) for the license. The SER also specifies that the "three sites" (Church Rock, Unit 1, and Crownpoint) comprise the project. In addition, the SER lists various additional information that HRI provided the staff after the FEIS was issued – specific, technical information relating to the proposed operations at Unit 1 and Crownpoint.

With the FEIS and SER completed, the hearing process resumed in December 1997. By that time, intervenors had reviewed the license application, the DEIS, the FEIS, HRI's Consolidated Operations Plan, Rev. 1 (later revised), and extensive correspondence between the NRC staff and HRI about the application. They also had retained several expert consultants to aid in the review of these materials. *See, e.g.*, Petitioners' ENDAUM and SRIC's Motion for Leave to Amend Requests for Hearing (Aug. 19, 1997) at 18-22. All these documents referred to a project encompassing the Church Rock, Unit 1, and Crownpoint sites.

The Presiding Officer granted the petition for hearing and admitted the intervenors on May 13, 1998. In doing so, he explicitly declared that "this proceeding must examine the HRI application. It therefore includes *all* the sites at which in situ leach mining is to be conducted, including sites on which radioactive wastes may be discharged." LBP-98-9, 47 NRC 261, 274 (1998) (emphasis in original). He went on to admit many of the intervenors' Areas of Concern, most of which were understood to encompass – if not focus upon – the Unit 1 and Crownpoint sites. It was only immediately after the Presiding Oficer granted the hearing and admitted the intervenors that HRI first made its change of plans known to the Presiding Officer and to the parties, and asked to "bifurcate" the case between the "Section 8" site and the other sites.

In all of the time prior to HRI's request to have the proceeding bifurcated to consider only the site-specific issues involving Section 8, the intervenors spent considerable effort reviewing documents that went to the entire project, not simply Section 8. Their experts filed detailed affidavits that focused largely upon the Unit 1 and Crownpoint sites. Indeed, the decision to bifurcate the proceeding to focus on Section 8 apparently took the intervenors by surprise, for they had until then focused the bulk of their review upon the Crownpoint and Unit 1 sites.[3] *See, e.g.*, Joint Motion for Reconsideration of Bifurcation Order (Sept. 30, 1998) at 16; NRC Staff Response to

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[3] Section 8, as described by HRI, is "the least sensitive area with the fewest potential environmental or health risks." HRI's Request for Bifurcation (June 4, 1998) at 14.

Intervenors' Petition for Review (Oct. 20, 1998) at 9. Yet at no time while the intervenors were engaged in preparing their voluminous pleadings did HRI intimate that it had no current intention of mining anywhere other than in the Church Rock Section 8 site.

While HRI frequently emphasized that its license outlines a *phased* mining approach, mandating the successful completion of *in situ* leach activities at Section 8 before HRI can move on to the other project sites, HRI's pleadings still referred to the "proposed ISL mining at the Crownpoint and Unit 1 sites." HRI's experts likewise referred to the Section 17, Unit 1, and Crownpoint sites. Indeed, as late as one month before the Presiding Officer granted the hearing request and admitted the intervenors, HRI's adjudicatory submissions still conveyed the intent to mine all three sites.

We understand that HRI, due to fluctuating market conditions or other economic concerns, is indecisive about whether to pursue earlier plans to mine the other project sections. HRI's vacillation, however, should not be allowed to prejudice duly-admitted intervenors who seek their opportunity for a timely hearing on a current license. We take no issue with HRI's clear prerogative to alter its plans as the market dictates. Just as HRI amended its license application to add project sites, HRI certainly has been free all along to amend its application (now license) to reduce the license's scope. Our concern lies with HRI's desire to retain a license for mining all of the sites while at the same time putting off indefinitely, likely for years and with no clear resolution in sight, a hearing on the other sites encompassed by its already-issued license. HRI cannot both hold an NRC license and refuse to litigate its validity – particularly in the circumstances of this case, where the intervenors had every reason to believe that the *entire* HRI license was subject to a hearing and invested substantial effort and resources in getting ready for a hearing.

In granting HRI's request for an abeyance order, the Presiding Officer noted that:

> To be sure, Intervenors have invested substantial legal and technical resources in this proceeding. Whatever is already in the record will, of course, be available for them to reference should the proceeding be resumed. In addition, they may choose to preserve testimony in affidavit form. These affidavits, if they choose to use them, will be available for use in future proceedings.

LBP-99-40, 50 NRC at 274. HRI, though, informed the Presiding Officer that, most likely, it would not be making a decision on whether to proceed with the other sites "*at least* for the next few years." Request for Bifurcation (June 4, 1998) at 13 (emphasis added). The Commission does not find unreasonable, then, the intervenors' concern that its "expert affidavits may grow stale and dated with time," and that previously retained experts who have filed affidavits or otherwise already have a familiarity with the case may prove unavailable years down the road. *See* Petition for Interlocutory Review of Oct. 19, 1999 Order (Nov. 8, 1999) at 5 n.3.

In addition, the Commission recognizes that the record in this proceeding grew rapidly, is highly technical, and relates to a number of different regulations and statutes, including the AEA, NEPA, the Uranium Mill Tailings Radiation Control Act, the National Historic Preservation Act, the Safe Drinking Water Act, and the codes of the State of New Mexico. Numerous NRC Regulatory Guides and Technical Position Papers also provide information relating to *in situ* leach mining applications and operations. In short, the amount and complexity of information the intervenors and their experts reviewed before the hearing was bifurcated (and then placed in abeyance) most certainly were formidable. To compel them now to wait years without knowing when or if there will be any further hearing imposes an unacceptable and unfair burden.

The intervenors responded to a 1994 notice of hearing and were admitted to this proceeding over two and a half years ago. The Commission believes it is time to resume the hearing process and allow the intervenors to litigate the rest of their concerns. Our decision furthers the Administrative Procedure Act's directive that an agency "within a reasonable time, shall set and complete proceedings required to be conducted . . . and shall make its decision." 5 U.S.C. § 558(c).

To avoid a hearing on Section 17, Unit 1, and Crownpoint, HRI may, of course, apply for an amendment to reduce the scope of its license. Otherwise, the proceeding shall resume approximately six months after the date of this order. This gives HRI some time to consider its economic position and gives all of the parties time to plan and prepare for resuming the hearing process. At least three months prior to the resumed hearing, HRI must indicate on the record whether it wishes to retain its full license and proceed to hearing, or modify it to cover only the Section 8 site. We direct the Presiding Officer to consult with the parties and to establish a precise schedule for further proceedings.[4]

III. NEPA Order (Second Half of LBP-99-30)

We turn now to intervenors ENDAUM and SRIC's challenge of the NEPA (and Environmental Justice) findings the Presiding Officer made in the second half of LBP-99-30.[5] NEPA requires federal agencies to include a detailed statement of environmental consequences, commonly known as an environmental impact statement (EIS), for all proposals that would "significantly affect [ ] the quality of the human environment." 42 U.S.C. § 4332(2)(C). Preparation of an EIS serves two goals:

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[4] While we agree with the intervenors that the Presiding Officer's abeyance ruling was wrong from policy and fairness perspectives, our decision today intimates no view on whether the abeyance ruling in any way violated the AEA, NEPA, or other statutes.

[5] The first half of LBP-99-30 addressed technical, health and safety groundwater issues pertaining to the Section 8 site. The Commission denied the intervenors' petition for review of the first half of LBP-99-30. *See* CLI-00-12, 52 NRC 1 (2000).

> It ensures that the agency, in reaching its decision, will have available, and will carefully consider, detailed information concerning significant environmental impacts; it also guarantees that the relevant information will be made available to the larger audience that may also play a role in both the decisionmaking process and the implementation of the decision.

Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 349 (1989). NEPA, though, does not require that the agency select any particular options. It "does not mandate particular results, but simply prescribes the necessary process." *Id.* at 350. "Simply by focusing the agency's attention on the environmental consequences of a proposed project, NEPA ensures that important effects will not be overlooked or underestimated only to be discovered after resources have been committed or the dies otherwise cast." *Id.* at 349.

In their petition for review, the intervenors raise a number of legal and factual challenges. NEPA issues often involve complex and important legal considerations, and this lengthy, contentious, and "bifurcated" proceeding certainly does so. The Commission therefore grants review of the Presiding Officer's NEPA/environmental justice decision. Given the comprehensive record already accumulated in this proceeding, the Commission finds it unnecessary to request additional appellate briefs from the parties. The Commission has carefully reviewed the parties' arguments, the Presiding Officer's findings, and relevant portions of the hearing record. We find no material error in LBP-99-30 and, for the reasons outlined below, we affirm the decision. Before beginning our discussion, however, several overriding points warrant special mention.

First, our decision largely does not revisit fact findings by the Presiding Officer with which we agree or have no strong basis to second guess. As we stated recently in this proceeding:

> [B]ecause the Presiding Officer has reviewed the extensive record in detail, with the assistance of a technical advisor, the Commission is generally disinclined to upset his findings and conclusions, particularly on matters involving fact-specific issues or where the affidavits or submissions of experts must be weighed. While we certainly have discretion to undertake a *de novo* factual review where appropriate, we ordinarily attach significance to the [presiding officer's] evaluation of the evidence and . . . disposition of the issues, and we do not second guess his or her reasonable findings.

Hydro Resources, CLI-00-12, 52 NRC 1, 3 (2000) (quotations and citations omitted). Many of the Presiding Officer's NEPA findings rest entirely or largely upon his analysis of the parties' fact-specific arguments, submitted by their various experts. Unless otherwise noted in this decision, therefore, the Commission agrees with the results reached by the Presiding Officer.

Indeed, infused throughout the intervenors' petition for review are claims that the Presiding Officer – and the FEIS – underestimated particular environmental costs of the project. These NEPA claims, though, consist essentially of fact-specific, technical arguments, already rejected by the Presiding Officer and, in many cases, also by the Commission.

A specific example is the intervenors' claim that the FEIS underestimates the impact of radioactive air emissions and the impacts to groundwater. These claims are rooted directly in specific, technical, health and safety issues resolved in HRI's favor by earlier Presiding Officer decisions. *See* LBP-99-19, 49 NRC 421 (1999); LBP-99-30, 50 NRC 77 (1999) (first half). The Commission previously considered these earlier decisions on air emissions and groundwater protection and found them to be free of any clear, significant error. *See, e.g.*, CLI-00-12, 52 NRC 1 (2000). At that time, the Commission considered but found unpersuasive all of the intervenors' specific arguments on radioactive air emissions and groundwater protection. We find no reason now to disturb the Presiding Officer's finding that the FEIS's discussion of the air and groundwater impacts to the Church Rock Section 8 area is adequate. In short, underlying their claim that these impacts have been underestimated in the FEIS are the same fact-specific, technical arguments previously rejected by the Presiding Officer – and later, the Commission – as either incorrect or otherwise unpersuasive.

Similarly, the intervenors allege generally that the FEIS underestimates the environmental costs to cultural resources and the costs from liquid waste disposal. *See* ENDAUM and SRIC's Petition for Review of LBP-99-18, LBP-99-19, and LBP-99-30 (Sept. 3, 1999) ("Intervenors' Brief") at 43, 49. The Commission, though, already has considered whether the FEIS fairly treats the issues of cultural resources and liquid waste disposal. *See* CLI-99-22, 50 NRC 3 (1999) (rejecting intervenors' NEPA and other claims regarding liquid waste disposal and cultural resources).

As we just have emphasized, the Commission is not inclined to second-guess those highly fact-specific conclusions made by the Presiding Officer with the assistance of his technical advisor. Moreover, the intervenors' petition for review simply raises no new NEPA-centered argument casting doubt on the adequacy of the FEIS's discussion of the various possible impacts to Section 8. We therefore find no basis to revisit LBP-99-30's fact-based conclusions on groundwater, air emissions, liquid waste disposal, cultural resources, and health impacts.[6]

We must note, additionally, that the intervenors' petition for review is marred by frequent generalized claims followed by citations to lengthy, multi-page sections of earlier briefs they filed before the Presiding Officer. This practice runs afoul of our page limits on petitions for review and briefs, which are intended to encourage parties to make their strongest arguments clearly and concisely, and to hold all parties to the same number of pages of argument. Significantly, as the Commission considered the intervenors' petition for review, we often did not know what specific claims were being alleged. The Commission should not be expected to sift unaided through large swaths of earlier briefs filed before the Presiding Officer in order to piece together and discern the intervenors' particular concerns or the grounds for their claims. *Cf.* Commonwealth Edison Co. (Zion Nuclear Power

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[6] The one technical topic upon which we reserve judgment is the Presiding Officer's statements regarding the adequacy of the 0.44 mg/L secondary groundwater restoration standard for uranium. In CLI-00-12, 52 NRC 1 (2000), the Commission declined to reopen the record to admit new evidence on the adequacy of this standard. We said in that decision that this secondary restoration standard was unlikely ever to be an issue for Church Rock Section 8, but likely could be for the other proposed project sites. The standard has been referred generically to the NRC staff for re-evaluation. "Since the record is not closed concerning those sites, the Petitioners may raise this groundwater issue in the hearing on those sites." 52 NRC at 6 n.4.

Station, Units 1 and 2), CLI-99-4, 49 NRC 185 194 (1999). The intervenors, therefore, bear responsibility for any misunderstanding of their claims. The Commission further takes this occasion to place all parties on notice against use of this practice in future submissions.

We come now to the other issues raised by the intervenors. We note, first, that the Presiding Officer's decision in LBP-99-30 generally must be read within the context of the FEIS. While the Presiding Officer repeatedly references the FEIS, in some places his decision would have benefitted from a fuller discussion of the FEIS's contents. At times, his statements can appear rather cursory. Accordingly, the Commission finds that several issues warrant additional review and comment.

A. Burden of Proof

In repeated instances, the intervenors provide only unspecific, conclusory claims, as in their unsupported argument that the Presiding Officer "erred as a matter of law by placing the burden of proof on most NEPA issues on the Intervenors." *See* ENDAUM and SRIC's Petition for Review of LBP-99-18, LBP-99-19, and LBP-99-30 (Sept. 3, 1999) at 41. The sole basis for this claim, apparently, was that the Presiding Officer did not always provide express citations to portions of HRI's or the staff's briefs. *See id*. It is clear, nonetheless, from the Presiding Officer's decision that he drew heavily from the arguments presented by HRI and the staff and that, generally, throughout the proceeding, he was "convinced by HRI and the Staff, by a preponderance of the evidence." 50 NRC at 110.

B. Project Purpose and Need

The FEIS states that the primary benefit of this *in situ* leach mining project is that it "would provide a domestic source of uranium." FEIS at 5-1. The FEIS further specifies that while annual imports of uranium increased 300% between 1985 and 1994, the annual domestic uranium production decreased 75% during this time. *Id.* By 1994, for example, uranium imports totaled 35 million pounds annually, compared to less than five million pounds of domestic uranium. *Id.* The FEIS thus concludes that "[t]he proposed project, which would produce about one million pounds of uranium per year at each of the three project sites, would have the beneficial effect of helping the United States offset this deficit in domestic production." *Id.*

Concededly, this information appears in the FEIS's section titled "Costs and Benefits," rather than the section expressly titled "Purpose of and Need for the Proposed Action." Nevertheless, the FEIS should be read and understood as a whole. It clearly identifies domestic uranium production as the primary public benefit associated with this project.

The intervenors claim that this benefit of domestic uranium "does not exist." *See* Intervenors Brief at

42. The gist of this vague claim is that there is no need for an additional domestic source of uranium, given current market conditions. HRI, however, has repeatedly emphasized that if market conditions are unfavorable – taking into account uranium prices and HRI's costs of operations – it will not go forward with the project. As the Presiding Officer described, only if uranium prices climb and cross HRI's "break-even" point will HRI choose to enter the market. The Presiding Officer assumed that if the price of uranium rises to a level HRI finds conducive to entering the uranium market, the change in price "would indicate an improvement in the demand/supply ratio." 50 NRC at 113. Such changes in the uranium price would reflect a more "active market for uranium," the Presiding Officer reasoned, in which case it may well prove that HRI's "additional supply would be useful." *See id.*

The FEIS simply recognizes the general need for domestic uranium production. It does not purport to evaluate who may be the strongest and most viable market participants in the domestic uranium field. Moreover, predictions of demand for uranium are highly speculative and subject to fluctuating factors. Just as market conditions may have changed since HRI first applied for its license, they may significantly change again. The Commission therefore is "not inclined to second-guess . . . findings on supply, demand, and pricing." *See Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 93 (1998) ("*Claiborne*"). Such findings "reflect not ineluctable truth, but rather a plausible scenario." *Id.* at 94. The intervenors have not called into question the general interest in maintaining a domestic uranium production industry or HRI's possibly significant role as a domestic uranium producer. Regardless of the current market price for uranium or shifting market scenarios speculating upon future uranium supply and demand, it remains in the national interest to maintain a domestic uranium production capability. *See* FEIS at 5-1; *see also* Atomic Energy Act, U.S.C. §§ 2210b, 2296b(3).

C. Cost-Benefit Analysis:

1. Secondary Benefits

The intervenors claim that the Presiding Officer relied "exclusively" on secondary benefits to the local economy to support the project. Indeed, the decision does often focus upon the local economic benefits of the project, a subject of great dispute in this proceeding. The Presiding Officer, however, also explicitly discussed the benefit of domestically produced uranium. As we just noted above, he addressed and rejected the intervenors' claim that the FEIS "overstates the need for domestic uranium," finding instead, that if uranium market prices climb, "there would be an active market for uranium and [ ] the additional supply [from HRI] would be useful." 50 NRC at 113. In any event, the FEIS clearly provides that additional domestically-produced uranium would be the project's primary public benefit.

If ultimately HRI finds it economically prohibitive to enter the market, then "the project will not go forward" and "there will be none of the adverse effects discussed in the FEIS." 50 NRC at 113. The intervenors, though, argue that HRI's license "does not prohibit the licensee from commencing operations" even if the market price of uranium does not rise to a level advantageous to HRI, and that HRI may simply "find it expedient to operate the project at a loss." *See* Intervenors' Brief at 42-43. The NRC, however, is not in the business of regulating the market strategies of licensees. HRI has provided information on its estimated operating costs. Admittedly, those costs and the price of uranium are subject to frequent and significant fluctuations. It remains nonetheless within HRI's business discretion to determine whether market conditions warrant commencing mining operations. The NRC looks to whether HRI can conduct operations safely. We leave to HRI the intricate ongoing business decisions that relate to costs and profit. In the end, we cannot but presume that HRI will not seek to go forward with mining operations unless it expects ultimately to have a successful market for its product. Nothing revealed in this proceeding renders such a market so implausible that the goals of the project cannot be achieved.

The intervenors further challenge FEIS estimates of secondary benefits to the local economy. Benefits such as the number of jobs created by the project and amount of taxes HRI will pay depend upon the quantity of U3O8 produced. Uranium production, in turn, hinges upon HRI's costs of production and the market price for uranium. *See* FEIS at 5-2, 5-3.

The FEIS presumes a uranium market price of $15.70. The intervenors claim that "[t]he current market [price] is below $11.00 and is not forecast to rise anywhere near $15.70 in the next decade." Intervenors' Brief at 42. They therefore emphasize that the secondary benefits listed in the FEIS may "never come to pass." *Id.* at 43. Their point is well taken, but already repeatedly acknowledged in the FEIS and by the Presiding Officer's decision:

> The important point relevant to assessing the project's potential benefits to the local community is that the benefits depend on HRI's costs being lower than the future price of U3O8, which has been quite volatile. If the price of U3O8 is less than the costs of operation, then operations may be discontinued. If this happens, there would be no economic benefits to the local community.

FEIS at 5-3; *see also* 50 NRC at 125-26 (staff affidavit incorporated in decision).

Both the Presiding Officer's decision and the FEIS make clear that the number of jobs and the average salary of workers may be lower if U3O8 prices prove to be lower than $15.70 per pound. *See* FEIS at 5-2, 5-3, 4-96, 4-97; *see also* 50 NRC at 126. The Presiding Officer recognized that a host of factors may impact and reduce the benefits from employment, royalty income and taxes, that some potential benefits are not quantified,[7] and that all figures provided are at best approximations. *See* 50 NRC at 118.

The FEIS indeed emphasizes that spot market prices have been "very volatile, fluctuating from a high of over $16 in 1987 to a low of less than $8 in 1991," and that "[a]s late as 1995, the price was less than $10 per pound." FEIS at 5-2. And, as the Commission already has stressed in this opinion, "price projections reflect not ineluctable truth, but rather a plausible scenario." *Claiborne*, 47 NRC at 94. We find no reason to disturb the estimates of secondary benefits drawn in the FEIS. These are only *estimates* of secondary local benefits which the FEIS itself acknowledges conceivably may never materialize. Moreover, while unnecessary, the Presiding Officer even incorporated into his decision some additional – and lower – estimates of secondary benefits, based upon a lower uranium price of $9 per pound. *See* 50 NRC at 127.

In short, the Presiding Officer merely concluded that the secondary benefits would have a "small favorable impact" on the local economy, while the hearing on Section 8 revealed "no serious risks attendant to the project." *Id.* at 118. The Commission finds no compelling reason to disturb the Presiding Officer's conclusion.

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[7] Nor must all economic benefits be quantified. NEPA "does not require a particularized assessment of non-environmental impact." *Idaho Conservation League v. Mumma*, 956 F.2d 1508, 1522-23 (9th Cir. 1992); *see also Public Util. Comm'n of California v. FERC*, 900 F.2d 269, 282 (D.C. Cir. 1990).

Of course, there has yet to be a hearing on the safety and environmental impacts of the other three project sites. In many respects, then, the Presiding Officer's cost/benefit assessment can be said to have been merely partial or preliminary, for he had only examined the various costs – air emissions, groundwater, etc. – associated with Section 8. If the resumed hearing on the other project sites brings to light any significant new finding bearing on the overall project's costs, the FEIS cost/benefit analysis may need to be modified. It remains to be determined, then, whether the potential costs of one or more of the other project sites may require revision of the FEIS's cost/benefit conclusions.

2. Land Use

We turn next to the intervenors' argument on land use impacts. These impacts, as described in the FEIS, include on-site disturbance of approximately 90% of the Church Rock site, the temporary disruption of livestock grazing at project sites, and the potential relocation of residents. *See* FEIS 4-93, 4-94. The FEIS recognizes that "[l]ocal residents have expressed concern that this disruption of grazing would adversely affect Navajo who have grazing permits for the land and rely on livestock as an important economic resource." *Id.* at 4-94.

The intervenors challenge certain statements by the Presiding Officer on land use impacts. In particular, they challenge the Presiding Officer's statement that "[t]he loss of the small plot of land in Church Rock Section 8, set as it is in the midst of a vast desert, will not materially affect the ability of people to graze their cattle." 50 NRC at 114; *see also id.* at 118 ("I do not see how anyone could possibly be prevented from raising livestock because ISL mining will take place on Section 8"). The intervenors argue that the Presiding Officer "ignores the fact that HRI's proposals for waste disposal involve more than Section 8." Intervenors Brief at 44. They reference an earlier brief, filed before the Presiding Officer on the issue of Liquid Waste Disposal, which indicated that there is one Church Rock resident of Section 17 who grazes his cattle on Section 16, one of the areas proposed for liquid waste disposal from Section 8.

The FEIS, however, clearly and repeatedly acknowledges that HRI's proposals for disposing liquid wastes from the Church Rock site may involve more than Section 8. *See, e.g.*, FEIS at 4-11; 4-93; 3-55; 2-26. One of the possible liquid waste disposal methods is "land application," in which agricultural irrigation equipment is used to apply wastewater over a relatively large land area. *See id.* at 2-19. If land application ultimately is selected as the waste disposal method for Section 8, there are four possible sites that may be used: Section 17, Section 8, Section

12, and Section 16. *Id.* at 4-11. Up to 640 acres of pasture land from Section 16 might be affected. *Id.* at 4-11; 4-93. That land is owned by the State of New Mexico. *Id.* at 4-11.

The Presiding Officer may have overlooked the one individual who holds a grazing permit for part of Section 16, on which he grazes 18 to 30 head of cattle, and whose activity may be temporarily impacted by operations on Section 8. It should be noted, however, that this remains only a possibility. There are four different possible methods of liquid waste disposal that HRI ultimately may select: evaporation ponds, land application, surface water discharge, or deep well injection. *See id.* at 4-86. Land application might not be the liquid waste disposal method ultimately chosen for Section 8.

More significantly, HRI's license does not currently authorize waste disposal through land application. For HRI to conduct waste disposal through land application, it must first submit a plan, in the form of a "detailed license amendment" application, and receive approval by the NRC. *See id.* at 4-80; 4-90; *see also* License Condition 11.8; *Hydro*, CLI-99-22, 50 NRC 3, 10 (1999). The "NRC would consider any consequences arising from such [an] approval[ ] at that time." *Hydro*, CLI-99-22, 50 NRC at 10. Land application, in short, "would have to be proposed by HRI under a license amendment and [then] would be subject to additional environmental review." *See* FEIS at 2-18; 4-90. Meanwhile, the FEIS does not overlook the general possibility that individuals with grazing permits may be temporarily displaced and should be compensated accordingly. *See, e.g.*, *id.* at 4-118; 4-95.

D. Failure to Supplement FEIS

1. Performance-based Licensing

The intervenors claim that the staff's decision to include performance-based licensing concepts in HRI's license warrants formal supplementation of the FEIS. *See* Intervenors' Brief at 45. We disagree. First, the Commission already has considered and rejected the intervenors' claims that performance-based licensing (1) violates the AEA and NEPA, (2) accords undue discretion to the licensee, and (3) deviates sharply from agency regulatory practices and trends. *See Hydro*, CLI-99-22, 50 NRC at 15-17.

Secondly, the mere inclusion of performance-based concepts in HRI's license does not warrant FEIS supplementation. Performance-based licensing concepts allow "minor operational modifications, without significant safety or environmental impact." *Id.* at 16. They are based on the notion that requiring a license amendment for any change, "no matter how inconsequential, would burden both licensees and the NRC, to no good end." *Id.*

License Condition 9.4 permits HRI to make certain changes in operations without NRC approval, but "only those changes that are consistent with existing license conditions and applicable regulations," and with the Safety Evaluation Report (SER) and FEIS. *Id.* at 17. If any of these conditions are not met, HRI must seek a license amendment. *See* License Condition 9.4. Any change made pursuant to License Condition 9.4 must be fully documented and reported to the NRC, which will monitor all changes to assure that in fact no license amendment was required.

"Not every change requires a supplemental EIS; only those changes that cause effects which are significantly different from those already studied." *Davis v. Latschar*, 202 F.3d 359, 369 (D.C. Cir. 2000). The new circumstance must reveal a "seriously different picture of the environmental impact of the proposed project." *Hydro*, CLI-99-22, 50 NRC at 14 (citing *Sierra Club v. Froehlke*, 816 F.2d 205 (5th Cir. 1987)). Here, "[b]y its own terms, License Condition 9.4 requires HRI to apply for a license amendment if any change, test, or experiment it undertakes is not consistent with the findings in the FEIS." *Hydro*, 50 NRC at 17. By no means will License Condition 9.4 "affect the quality of the human environment in a significant manner or to a significant extent not already considered." *See Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 374 (1989).

2. Alternatives in FEIS

We similarly reject the intervenors' claim that new alternatives and proposed mitigation measures provided in the FEIS require a supplemental EIS.[8] The intervenors declare that the alternatives in the FEIS represent "significant changes" – to the draft EIS – warranting supplementation. *See* Intervenors' Brief at 45-46. The argument, presented in conclusory and summary form, is unpersuasive. The Commission agrees with the Presiding Officer that the listed alternatives in the FEIS do not reflect a "substantial change in the description of the project," and thus do not warrant further circulation of the FEIS for comment. *See* 50 NRC at 116.

An FEIS typically is issued after comments on the DEIS have been received and reviewed. That the FEIS, in response to comments received, may supplement, refine, or otherwise adapt the project alternatives is not only reasonable but expected. *See* Council on Environmental Quality Regulations (CEQ), 40 C.F.R. § 1503.4. The FEIS, for instance, might typically add "mitigation measures" to an alternative, or might suggest a new alternative that is a variation upon one or more previously proposed alternatives. *See* Forty Most Asked Questions Concerning CEQ's NEPA Regulations, 46 Fed. Reg. 18,026, #29b (1981).

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[8] Under NEPA, the FEIS must include a statement on the alternatives to the proposed action. *See* 42 U.S.C. § 4332(2)(C)(iii).

Here, the alternatives in the final EIS were well within the "spectrum" and "range" of alternatives discussed in the draft EIS. *See Dubois v. U.S. Dept of Agriculture*, 102 F.3d 1273, 1292-93 (1st Cir. 1996), *cert. denied*, 521 U.S. 1119 (1997). The primary distinction of the FEIS's "Alternative 2," for instance, is that the project might be reduced to only one or two of the proposed sites, instead of necessarily encompassing all of them. FEIS at 2-31. "Alternative 3," as the Presiding Officer found, simply includes additional NRC-imposed license conditions to "improve safety and reduce risk to the environment." *See* 50 NRC at 116. The intervenors, moreover, will have full opportunity to challenge the adequacy of these license conditions in the resumed adjudicatory proceeding.

3. Inclusion of Staff Affidavit

Finally, the Presiding Officer's incorporation into LBP-99-30 of a staff affidavit on costs and benefits also does not require FEIS supplementation. All of the information in that affidavit was based upon and entirely encompassed by the FEIS. No significantly new picture of environmental or other impacts is presented by the affidavit.

In addition, in an adjudicatory hearing, to the extent that any environmental findings by the Presiding Officer (or the Commission) differ from those in the FEIS, the FEIS is deemed modified by the decision. *See, e.g.*, *Philadelphia Elec. Co.*, (Limerick

Generating Station, Units 1 and 2), ALAB-819, 22 NRC 681, 706-07 (1985); *Niagara Mohawk Power Corp.* (Nine Mile Point Nuclear Station, Unit 2), ALAB-264, 1 NRC 347, 371-72 (1975). "The adjudicatory record and Board decision (and, of course, any Commission appellate decisions) become, in effect, part of the FEIS." *Louisiana Energy Services* (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 89 (1998). Indeed, the hearing process itself "allows for additional and more rigorous public scrutiny of the FES than does the usual 'circulation for comment." *Limerick*, 22 NRC at 707.

E. Evaluation of Project Alternatives

The intervenors challenge the Presiding Officer's discussion of the project alternatives, including the "no action" alternative. Once again, they provide us with no specific challenge to the FEIS, and instead expect the Commission to review portions of an earlier brief before the Presiding Officer to glean their concerns. *See* Intervenors' Brief at 46. While we have no obligation to search for unidentified arguments buried in earlier briefs, we nonetheless have examined the intervenors' earlier claims, and find no basis to reverse the Presiding Officer's statements on alternatives. We do, however, agree with the intervenors that the Presiding Officer failed to expressly address some of the claims the intervenors raised before him. His decision also would have benefitted from a more detailed treatment of the "alternatives" issue. The Commission therefore provides the following additional comments.

1. "No Action" Alternative

Generally, one of the alternatives proposed in an FEIS is the agency alternative of taking "no action." For the "no action" alternative, there need not be much discussion. *See Headwaters, Inc. v. Bureau of Land Management*, 914 F.2d 1174, 1181 (9th Cir. 1990). It is most simply viewed as maintaining the status quo. *See Association of Public Agency Customers v. Bonneville Power Administration*, 126 F.3d 1158, 1188 (9th Cir. 1997) (referencing Council on Environmental Quality Memorandum to Agencies, 46 Fed. Reg. 18,026, 18,027 (Mar.1, 1981)).

In this case, "no action" would mean denial of the HRI license. It is self-evident from both LBP-99-30 and the FEIS that the "no action" alternative would have the advantage of obviating all of the health and environmental impacts associated with the project, but also would forego "uranium production from Section 8" and the "beneficial socioeconomic impacts discussed in the FEIS." 50 NRC 132-33; *see, e.g., id.* at 133-41; FEIS at 4-63, 4-66, 4-72. While the FEIS could have done a better job articulating final conclusions on the alternative chosen, it is nonetheless implicit in the FEIS that the "no action" alternative was rejected because the impacts of the project were found acceptable, while the ISL mining would yield significant quantities of domestically produced uranium as well as some local socioeconomic benefits. *See, e.g.*, FEIS at 4-120 to 4-127 (finding cumulative impacts either minor or, given license conditions and other mitigative measures, acceptable, for air quality, radiological health, ecology, land use, transportation risk, groundwater, etc.); *see also id.* at 5-1 to 5-5 (on benefits). Similarly, the Presiding Officer's decision ultimately rejects the "no action" alternative because it finds the impacts of the project either "minimal" or "acceptable" and the benefits desirable. *See, e.g.*, 50 NRC at 132-33.

Clearly, the intervenors preferred the "no action" alternative, but NEPA imposes no obligation to select the most environmentally benign alternative. *See Robertson v. Methow Valley*, 490 U.S. 332, 350 (1989). NEPA "does not dictate agency policy or determine the fate of contemplated action." *Davis v. Latschar*, 202 F.2d 359, 360 (D.C. Cir. 2000) (quoting *Environmental Defense Fund v. Massey*, 986 F.2d 528, 532 (D.C. Cir. 1993)).

2. Other Alternatives

Agencies need only discuss those alternatives that are reasonable and "will bring about the ends" of the proposed action. *Citizens Against Burlington v. Busey*, 938 F.2d 190, 195 (D.C. Cir.), *cert. denied*, 502 U.S. 994 (1991). "When the purpose is to accomplish one thing, it makes no sense to consider the alternative ways by which another thing might be achieved." *Id.* (citing *City of Angoon v. Hodel*, 803 F.2d 1016, 1021 (9th Cir. 1986) (per curiam), *cert. denied*, 484 U.S. 870 (1987)).

The intervenors mischaracterize the project's purposes by declaring – over-broadly – that the project's main public benefit is simply to provide fuel for nuclear power plants. It is, more specifically, to help maintain the viability of a dwindling "domestic uranium mining industry." FEIS at 5-1. The "viability of the industry is a Federal concern," aimed at assuring a dependable, ongoing domestic source of uranium. *See id.* Other public benefits of the project include the socioeconomic benefits to the local community, the local governments, and the State of New Mexico. FEIS at 5-1 to 5-5; 50 NRC at 125-29. Of course, the applicant, too, would benefit from revenues generated from uranium sales. FEIS at 5-1. Additional alternatives suggested by the intervenors would not satisfy the goals of the project.

The intervenors entirely ignore the nature of the ISL project – it is a project proposed by a private applicant, not the NRC. "Where the Federal government acts, not as a proprietor, but to approve . . . a project being sponsored by a local government or private applicant, the Federal agency is necessarily more limited." *Citizens Against Burlington*, 938 F.2d at 197. The NRC is not in the business of crafting broad energy policy involving other agencies and non-licensee entities. Nor does the initiative to build a nuclear facility or undertake ISL uranium mining belong to the NRC.

When reviewing a discrete license application filed by a private applicant, a federal agency may appropriately "accord substantial weight to the preferences of the applicant and/or sponsor in the siting and design of the project." *Id.* The agency thus may take into account the "economic goals of the project's sponsor." *City of Grapevine v. Dept. of Transportation*, 17 F.3d 1502, 1506 (D.C. Cir.), *cert. denied*, 513 U.S. 1043 (1994); *see also Citizens Against Burlington*, 938 F.2d at 196 ("the agency should take into account the needs and goals of the parties involved in the application"). HRI proposes to mine on Section 8 of Church Rock because it owns land there in fee simple and that is where the ore body is located.

The NRC has the statutory responsibility to assure that all licensees meet applicable safety and environmental regulations. Here the staff found that HRI satisfied all safety and environmental requirements for its license. In its NEPA review, the staff determined that the health and environmental risks of the project could be mitigated satisfactorily and did not warrant denial of the license. The FEIS sets forth this conclusion.

As to the Section 8 site, the intervenors already have had the opportunity to challenge the adequacy of HRI's license and the FEIS. Today we order that the hearing be resumed, allowing the intervenors to challenge the rest of the license and the rest of the FEIS. Their participation will help assure that the FEIS has identified and evaluated all adverse environmental effects of the other project sites. Indeed, throughout this decision, the Commission has emphasized that there has yet to be a final agency adjudicatory decision on the cost/benefit balance for the entire project, given that the hearing so far focused only upon Section 8.

3. Comparison of Alternatives

The Presiding Officer's discussion of project alternatives, also, necessarily was limited because of his focus upon Section 8. The decision makes clear why the "no action" alternative ("Alternative 4") was rejected. *See* 50 NRC at 132-33. It also notes that the staff's recommended "Alternative 3" – containing numerous additional staff-imposed protective measures – is preferable to the other FEIS-listed alternatives (Alternatives "1" and "2"), which only include those mitigative measures proposed originally by HRI but found inadequate by the staff. *See id.* at 132; *see also id.* at 133-45. These conclusions on alternatives, however, necessarily only take into account the various findings on Section 8.

Having narrowed the initial hearing to Section 8, the Presiding Officer had no basis to address the full gamut of options available under "Alternative 2," one of the proposed alternatives. Alternative 2 would restrict the number of sites for ISL mining. Specific options under Alternative 2 include restricting operations to: (1) the Church Rock site; or (2) the Unit 1 site; or (3) the Crownpoint site; or (4) the Church Rock and Unit 1 sites; or (5) the Church Rock and

Crownpoint sites; or (6) the Unit 1 and Crownpoint sites. FEIS at 2-31.

Alternative 2 stems from the possibility – considered in the FEIS – that "potential impacts to public health and safety or the environment might indicate that ISL mining should not be conducted at all three sites" (Church Rock, Unit 1, and Crownpoint). *Id.* Given this possibility, instead of examining and discussing generally the entire project's impacts, the FEIS addresses the Church Rock, Unit 1 and Crownpoint impacts individually, as "subunits of the proposed project." *Id.* For each type of environmental impact, ecological, hydrological, meteorological, radiological, etc. – the FEIS breaks its discussion down into separate sections for Church Rock, Unit 1, and Crownpoint. In the end, however, the FEIS does not find any of the proposed project sites' impacts so significant as to warrant eliminating from the license one or more of the sites.

Because the hearing focused only upon Church Rock Section 8, the Presiding Officer's decision does not address the sundry project configurations offered by Alternative 2. In the resumed hearing, however, the intervenors may raise any of their arguments that go to whether the Unit 1, Crownpoint, or Church Rock Section 17 sites should not have been approved and included in the license. If the resumed hearing on the safety and environmental aspects of the Church Rock Section 17, Unit 1, and Crownpoint sites reveals any significant problem with conducting mining operations on any of those sites, there remains the possibility that the license ultimately may be restricted to fewer than the four proposed areas. At that time, there would be sufficient information and basis to examine in detail any called-for changes to this project.[9]

F. Cumulative Impacts

1. Inter-regional Impacts

We turn now to the question of the project's "cumulative impacts." Under NEPA, "[w]hen several proposals for . . . actions that will have a cumulative or synergistic environmental impact upon a region are pending concurrently before an agency, their environmental consequences must be considered together." *Kleppe v. Sierra Club*, 427 U.S. 390, 410 (1976). The term "synergistic" relates to the *joint* action of different parts – or sites – which, acting together, enhance the effects of one or more individual sites.

The expression "cumulative impacts," as it is used in NEPA analysis, frequently is misunderstood and indeed may have been misunderstood by one or more of the parties in this proceeding. NEPA analysis looks at both the severity of "impacts" a project may have on different resources, and the possibility that these impacts may combine in such a fashion that will enhance the significance of their individual effects. Only the latter consideration is the NEPA "cumulative impacts" concern.

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[9] In the event that HRI chooses voluntarily to narrow the scope of its license to Section 8 alone, the issue of other possible project design configurations becomes moot. The license then is reduced to cover operations only at Section 8. In effect, that would be similar to the first option proposed under Alternative 2: restricting mining to Section 8. The license, however, would also include all of the current staff-imposed mitigative measures, many of which Alternative 2 did not require.

To look at the "cumulative impacts" of a project, then, does not mean simply examining and adding up the "separate effects in each planning area," but instead goes to whether the "simultaneous development" of these areas will in fact heighten the project's overall impact. *See Natural Resources Defense Council, Inc. v. Hodel*, 865 F.2d 288, 297 (D.C. Cir. 1988). In other words, cumulative impacts analysis considers whether the sum may be greater than its parts.[10] Not all projects will have cumulative impacts. The impacts from separate actions or regions may simply not be "environmentally inter-related." *See Kleppe v. Sierra Club*, 427 U.S. at 411 & n.25.

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[10] A classic example might be that of whales and salmon migrating through different project areas. Simply looking at the potential impacts from each project area and adding these up may not reflect the true overall impact upon these animals, because they would be swimming through the project areas one after another, without respite. Thus, the simultaneous development of several project areas could have a greater impact upon the animals than the simple sum of the impacts of each project area. *See generally NRDC v. Hodel*, 865 F.2d 288 (D.C. Cir. 1988). Under NEPA, such a "cumulative" effect should be considered.

In this proceeding, the "cumulative impacts" issue led to some confusion over the precise scope of the Section 8 hearing. To better describe how the Presiding Officer approached cumulative impacts, the Commission believes it would be helpful here to outline a bit of the relevant procedural history.

When he first bifurcated the proceeding, the Presiding Officer said that, along with challenging Section 8, the intervenors could litigate any of their concerns that "challenge[d] the validity of the license issued to HRI." *See* Memorandum and Order (Sept. 22, 1998). Intervenors ENDAUM and SRIC accordingly sought to raise concerns over the project's cumulative impacts. They requested, though, that the Presiding Officer clarify *how* the cumulative impacts issue under NEPA could be resolved within the context of a bifurcated proceeding. *See* ENDAUM and SRIC's Request for Clarification (Nov. 2, 1998). Specifically, they stressed that the cumulative impacts of the proposed project on any given resource depends upon how the *four* project sites, considered together, might impact that particular resource. The intervenors therefore sought to include information on project impacts "from all mine sites" as part of their cumulative impacts presentation. *Id.*

The Presiding Officer appeared to have concurred. Broadly, he replied that:

> ENDAUM and SRIC are free to present any area of concern or portion of an area of concern that may demonstrate that the license

> at issue in this case was improperly granted. Since these intervenors believe that the cumulative impacts issue may invalidate the license, they may present that issue.

See Memorandum and Order (Nov. 10, 1998) (unpublished). Apparently confused by this ambiguous response, the intervenors *did* raise arguments encompassing other – non-Section 8 – sites in their cumulative impacts brief.

The Presiding Officer, however, declined to consider any argument on impacts from the other sites. Instead, he emphasized that the scope of the initial hearing had been narrowed to "the Church Rock Area." *See* 50 NRC at 121. He therefore rejected intervenor arguments on the potential impacts of relocating the Crownpoint site's wells as "not ripe for this phase of the proceeding, which is focused on Church Rock Section 8." *Id.*

What he *did* consider in the initial hearing were the past, present, and future impacts to *Section 8*, and whether these impacts considered together would lead to significant cumulative effects. He concluded that they would not. *See generally id.* at 119-21, 113-15, 109. Ultimately, he determined that there had been an adequate analysis of the "past and future cumulative impacts and segmentation issues associated with licensing HRI to conduct ISL operations *at Section 8*." *Id.* at 121 (emphasis added).

The cumulative impacts issue, perhaps more than any other NEPA issue, illustrates the awkwardness inherent in conducting a site-by-site hearing on what has been proposed and licensed as a multi-site project. The Presiding Officer's exclusive focus upon Section 8 does not address any possible *inter-regional* effects of mining operations on the four proposed sites: Church Rock Section 8, Church Rock Section 17, Unit 1, and Crownpoint. And inter-regional impacts are a key focus of cumulative impacts analyses.

Apparently, the Presiding Officer intended *ultimately* to consider cumulative, inter-regional impacts as the proceeding progressed to the other sites. *See, e.g., id.* at 107-08, 116-17. His decision only approves Section 8. Significantly, he retained the ability to disapprove any of the other project sections should their individual or cumulative effects prove unacceptable.

Although the Presiding Officer conducted a limited cumulative impacts analysis, focused only upon those environmental impacts – past and future – taking place in Section 8, in the resumed hearing the intervenors will have the opportunity to raise all their cumulative impacts concerns that involve the other project sites, including the effects of moving the Town of Crownpoint's wells, the groundwater impacts from the proposed sequence of mining, and the cumulative groundwater impacts from operations at the four sites. In the resumed hearing, the Presiding Officer must consider the impacts of Section 8 along with those of the other sections, to assure that all potential inter-regional cumulative effects have been adequately considered and discussed in the FEIS.

Because of the bifurcated hearing, it remains unclear whether the intervenors' concerns over the other project sites indeed point to any significant "cumulative impacts," as that expression is understood under NEPA judicial cases. For instance, the impacts to Crownpoint's water supply – an issue the intervenors tried to raise – might not have any "cumulative" or "synergistic" relationship with the impacts of Section 8 or any other sites.[11]

2. Impacts Within Section 8:

Cumulative impacts analysis looks not only to possible *inter-regional* "synergistic" effects, but also to whether, even at just one site, the proposed action's impacts will be significantly enhanced by already existing environmental effects from prior actions. A cumulative impacts review examines "the impact on the environment *which results from the incremental impact* of the action, when added to other past, present, and reasonably foreseeable future actions." 40 C.F.R. § 1508.7 (emphasis added).

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[11] In the event that HRI were to abandon plans to mine the other sections and choose to have the scope of its license narrowed to merely Section 8, no further cumulative impacts review involving the other sites need be litigated. *See National Wildlife Fed'n v. FERC*, 912 F.2d 1471, 1476-78 (D.C. Cir. 1990) (where applicant withdrew from its application the later phase of a project – "Phase II" – FERC did not need to evaluate the environmental effects of Phase II in reviewing the license application for Phase I). If HRI ever later decided to submit an application for a license to mine one or more of the other sites, the impact statement on them would then consider the environmental effects of Section 8 along with the effects of the later-proposed sites, to reach a conclusion on the cumulative impact of the added sites. *Id.* at 1478; *see also Kleppe*, 427 U.S. at 415 n.26.

As to the past, present, and future environmental impacts on *Section 8* alone, the Commission finds no basis to overturn the Presiding Officer's findings. The intervenors' vague, largely generalized claims do not identify any "clearly erroneous" factual finding or important legal error requiring Commission correction. It is clear from the record that the Presiding Officer in this proceeding reviewed voluminous filings from the parties and considered the intervenors' concerns, but nonetheless found the FEIS's cumulative impacts discussion adequate. "The NEPA process involves an almost endless series of judgment calls. . . . It is . . . always possible to explore a subject more deeply and to discuss it more thoroughly." *Coalition of Sensible Transportation v. Dole*, 826 F.2d 60, 66 (D.C. Cir. 1987).

Having considered the intervenors' claims, the Presiding Officer issued a series of partial initial decisions on the impacts to Section 8 and, in light of those decisions, he found no significant cumulative impact to the Section 8 site. Instead, he found that, read as a whole, the FEIS demonstrates sufficient consideration of the potential impacts of past and future impacts to Section 8. The intervenors' claims before the Commission fail to cast doubt on his conclusions. Indeed, the intervenors fail to raise any discrete, supported argument.

One of the intervenor's general concerns, for instance, involves the project's cumulative impacts on radiation levels. *See* Intervenors' Brief at 47. As the Presiding Officer held, however, the FEIS addresses this issue adequately. *See* 50 NRC at 120. The FEIS acknowledges that previous mining and milling activities in the Church Rock area "resulted in large exposures to radioactive materials, especially radon," and that these "exposures were large enough to result in a high incidence of cancer among workers." FEIS at 4-124. It goes on to conclude, though, that the HRI project will only result in a "negligible increase" in radiological impacts. *Id.* at 4-125; *see also id.* at 4-73 ("no significant radiological impact to area"). This is because the ISL process HRI will use "does not result in large amounts of tailings or environmental releases of radioactive particulate matter." *Id.* at 4-125; *see also id.* at 4-74, 4-82. Any expected exposures from possible sources of radon "are a very small fraction of the allowable limits for exposure of the public." *Id.* at 4-125; *see also id.* at 4-83; 4-85, 4-117. Radon exposures and potential concentrations at Church Rock would amount to approximately 0.5% of the applicable regulatory public limit. *See id.* at 4-83. The Presiding Officer was not persuaded that Section 8's radiological impacts would in any way result in unacceptable cumulative impacts. He therefore agreed with the FEIS's conclusion that the Section 8 project's impacts would not be a significant addition to the overall radiological impacts in the area.

Essentially, the intervenors challenge the FEIS's assessment of current radiation levels at Church Rock, and its calculation of expected radiation releases. The intervenors raised virtually identical arguments in their petition for review of LBP-99-19, 49 NRC 421 (1999) (partial initial decision on radioactive air emissions). After considering the intervenors' arguments, the Commission denied review of LBP-99-19, on the ground the intervenors failed to identify any "clearly erroneous factual finding" or "important legal error." *See* CLI-00-12, 52 NRC 1 (2000) (denying plenary review). Here, while as a formal matter we are granting review of the NEPA claims in an effort to clear up lingering questions, we affirm the Presiding Officer's ruling on cumulative impacts at Section 8 for the technical reasons given in the prior Presiding Officer and Commission decisions. At bottom, as the Presiding Officer recognized, the intervenors' various claims of environmental impacts are "a recapitulation of themes already stated by Intervenors and addressed by [the Presiding Officer]" in earlier partial initial decisions dealing with the technical, public health and safety review of the license. *See* 50 NRC at 109.

Cumulative impacts analysis looks to whether the impacts from a proposed project will combine with the existing, residual impacts in the area to result in a significant "cumulative" impact – where, in other words, the new impact is significantly enhanced by already existing environmental effects. The intervenors simply have not credibly suggested how the relatively minor radiological impact of Section 8 will in fact prove significant even when added to already existing radiological conditions. They have not cast doubt on the FEIS's conclusion that the Church Rock Section 8 mining will make only a minor, insignificant addition to overall pre-existing radiological impacts.[12]

Overall, the Commission finds that the Presiding Officer sufficiently supported his conclusions on the FEIS cumulative impacts discussion. When he reviewed the intervenors' cumulative impacts claims, the Presiding Officer already had issued partial initial decisions encompassing a host of issues pertaining to cumulative impacts – air emissions, liquid waste disposal, historic preservation, groundwater impacts, and other issues. He had, in short, already given in-depth consideration to many of the arguments underlying the intervenors' cumulative impacts claims. His cumulative impacts discussion, accordingly, refers back to several of these earlier decisions, none of which the Commission found cause to overturn or even to seriously question. We find no basis for reversal of the Presiding Officer's technical findings.[13] We again stress, however, that the possibility of inter-regional cumulative impacts remains to be dealt with in the resumed hearing.

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[12] The intervenors are correct that even minor impacts may prove significant when considered together with other individually minor impacts. "Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." 40 C.F.R. 1508.7. The Presiding Officer's statement that Section 8's impacts are not the "the straw that breaks the camel's back" simply reflects his conclusion that the future "small incremental increases" HRI's operations will bring to Section 8 will not add up to a significant cumulative impact when added to the current and past impacts to Section 8. He found Section 8's impacts "acceptable" and insignificant from the perspective of cumulative impacts analysis. *See* 50 NRC at 119.

3. Radiological Information in DEIS

More extensive background information on Church Rock's existing radiological characteristics was provided in the DEIS, referenced by the Presiding Officer. 50 NRC at 120. The intervenors suggest that the Presiding Officer committed "legal error" by finding the FEIS adequate merely "because information omitted from it on cumulative impacts was set forth in the DEIS and in a Staff affidavit." Intervenors' Brief at 48. The Commission disagrees.

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[13] The intervenors frequently mischaracterize the Presiding Officer's findings. The Presiding Officer never stated, for instance, that "adequate treatment in the License constitutes a sufficient evaluation of cumulative impacts." Intervenors' Brief at 48. While at times he notes applicable license conditions, these references relate to relevant FEIS discussions of staff-imposed monitoring and other mitigative measures. *See, e.g.*, 50 NRC at 120-21 (citing FEIS and earlier Partial Initial Decisions covering liquid waste disposal and cultural resources).

First, the Presiding Officer's conclusions do not turn on his references to the DEIS. The Presiding Officer found the FEIS's discussion of cumulative impacts adequate. *See* 50 NRC at 120-21 (finding that FEIS adequately treats radiological, groundwater, liquid waste disposal, cultural, and other impacts). While he noted that the DEIS provided a relevant, more detailed assessment of Church Rock background characteristics, he nonetheless concluded that the FEIS sufficiently acknowledges the "existence of elevated levels of radioactivity from previous mining and milling activities near Church Rock." *See id.* at 120 (citing FEIS at 4-72, 4-73, and 4-125).

Ideally, the FEIS might have included all of this additional, detailed background data made available in the DEIS. But none of this background data earlier provided in the DEIS casts any doubt on the FEIS's cumulative impacts conclusions. For instance, the DEIS concludes that previous mining and exploration activities at Church Rock "have probably slightly elevated" the area's background radiation levels, a point the FEIS fully recognizes. In some respects, the FEIS provides a greater acknowledgment of the earlier mining's impacts, even though its discussion is more qualitative than quantitative. *See, e.g.*, FEIS at 4-124 (describing legacy of "high incidence of cancer" among mine and mill workers, and high incidence of congenital abnormalities among Navajo babies born to mothers who live near mine waste sites).

In any event, the failure to include in the FEIS the detailed figures on background radiation did not prejudice the intervenors. This information was made publicly available in the DEIS, was considered by the NRC staff in its licensing decision, and was used and referenced by the intervenors in the hearing. Moreover, to the extent that the Presiding Officer's decision in any respect differs from the FEIS, the FEIS is deemed modified by the decision. *See supra* p. 30.

4. Burden of Proof

Lastly, we reject the intervenors' general claim that the Presiding Officer "erred as a matter of law by shifting the burden of proof on the cumulative impacts" issue to them. Intervenors' Brief at 48. As we already have said in this proceeding, "it is incumbent upon the Intervenors to identify, with some specificity, what the alleged deficiencies are." CLI-99-22, 50 NRC 3, 13 (1999). Throughout this proceeding, the Presiding Officer frequently has rejected the various claims of deficiency raised by the intervenors. *See, e.g.*, LBP-99-1, 49 NRC 29, 35-36 (repeatedly finding that intervenors have "incorrectly" or "erroneously" read FEIS discussions of liquid waste disposal issues and that "FEIS has not been brought . . . into question by the arguments of the intervenors"); *see also* CLI-99-22, 50 NRC at 12 & n.33 (affirming Presiding Officer's liquid waste disposal decision, and agreeing that intervenors' claims about FEIS liquid waste discussion were erroneous). Ultimately, the Presiding Officer was persuaded by "HRI and the staff, by a preponderance of the evidence," that the FEIS adequately discusses the Section 8 site's impacts and that Section 8 would have "no substantial inimical impact." 50 NRC at 110.

The Commission finds no indication that the Presiding Officer misplaced the burden of proof or conducted anything but a fair and unbiased review of Section 8's cumulative impacts. While his discussion at times is a bit short, it is because he relies upon earlier decisions whose extensive findings rejected the same key arguments underlying the intervenors' cumulative impacts claims. The Presiding Officer gave sufficient reason – based upon the FEIS and earlier decisions – for his cumulative impacts conclusions.

G. Environmental Justice

1. Introduction

The intervenors claim that the NRC failed to adequately assess the environmental justice implications of the HRI project. Environmental justice concepts call for each agency to identify and address, as appropriate, any "disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations." Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," 59 Fed. Reg. 7629 (Feb. 16, 1994), *codified at* 3 C.F.R. 859 (1995).

Any number of impacts, including health, ecological, or economic, may pose a disproportionately adverse burden upon a minority or Native American population. Environmental justice considerations therefore call for agencies to consider those "interrelated cultural, social, occupational, historical, or economic factors that may amplify the natural and physical environmental effects of the proposed agency action." *See* Council on Environmental Quality's Guidance Under NEPA (Mar. 1998) ("CEQ Guidance") (Exhibit 1-C, attached to Intervenors' Env. Justice Brief, Vol. 1). The NRC integrates environmental justice considerations into its NEPA review process. *See Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 100-110 (1998). We expect NRC EISs, and presiding officers in adjudications, to inquire whether a proposed project has disparate impacts on "environmental justice" communities and whether and how those impacts may be mitigated. *See id.* at 106-110.

2. FEIS Environmental Justice Discussions

We begin this section by acknowledging that the Presiding Officer's statements on environmental justice may seem cursory or dismissive of the project's potential risks. *See* Intervenors' Brief at 51. The Presiding Officer's statements, though, reflect merely his *overall* conclusion – and that of the FEIS – that with proper mitigative measures the Section 8 portion of the project is not expected to cause any severe health or environmental impacts to the Church Rock population. Yet, because the Presiding Officer's statements are brief and do not reference the numerous environmental justice discussions in the FEIS, the Commission adds the following discussion.

Simply put, environmental justice considerations are infused throughout this FEIS. The Commission therefore believes it is appropriate to begin this discussion by outlining some of the various environmental justice topics addressed in the FEIS.

First, while the FEIS finds that with proper mitigative measures the project is acceptable, it does not fail to reveal potential environmental risks. Both the FEIS as a whole and the particular FEIS section on environmental justice make clear that there are inherent risks involved in ISL mining and that significant geological information for the region has yet to be determined. These risks and unknowns underlie the various staff-imposed license conditions, requiring HRI to conduct extensive additional testing, analysis, and monitoring.

The FEIS fully discloses, for instance, that "[s]ignficant adverse effects to groundwater quality would result if an excursion (either horizontal or vertical) occurs or if, after routine mining, water quality is not restored." FEIS at 4-113. It further emphasizes that "[s]ucessful restoration of a production-scale ISL well-field has not previously occurred," and that "site-specific tests conducted by HRI have not demonstrated that the proposed restoration standards can be achieved at a production scale." *Id.* Nevertheless, after assessing the risks of horizontal and vertical excursions at Church Rock, the FEIS determines that HRI's monitoring program should be able both to detect and correct any excursions. *See generally id.* at 4-54 to 4-58. The FEIS thus ultimately concludes that the "previously identified impacts of this project can be mitigated." *Id.* at 4-60; *see also id.* at 4-60 to 4-63 (outlining mitigative measures to protect groundwater – including well integrity tests, effluent monitoring programs, and a maximum allowable production flow rate). These staff-imposed mitigative measures will reduce the "likelihood" and "severity" of any adverse impacts. *Id.* at 4-127.

Secondly, the FEIS outlines special areas of concern involving the Native American population. The FEIS acknowledges that the population near the proposed sites is almost entirely Navajo, and largely lives at a poverty level. *Id.* at 4-112; 3-79; 3-56. Those living in the 50-mile area surrounding the Hydro project comprise, "[b]y nearly any definition," an "environmental justice population." *Id.* at 3-79. Approximately 75% of the population within 50 miles of Church Rock is Native American. Within 10 miles of Church Rock, the percentage of Native Americans rises to approximately 97%. *Id.* In 1990, per capita income in the county was under $10,000. *Id.* at 3-56.

The FEIS provides extensive health data on the Navajo population, obtained from the Indian Health Service (IHSO), including its regional office for New Mexico and Arizona. *See id.* at 3-80 to 3-85. This information indicates that, compared to the general U.S. population, the Navajo population suffers disproportionately from fatal accidents, alcoholism, diabetes, tuberculosis, and pneumonia. *Id.* at 3-83 to 3-85.

Infant mortality also is higher for the Navajo population. *Id.* at 3-80, 3-84, 3-85. Moreover, the FEIS highlights that there is a significantly higher rate of congenital anomalies among Navajo infants than for U.S. infants generally. *Id.* at 3-84, 3-85. As the FEIS explains:

> This difference is noteworthy because there is some evidence to indicate that radiation exposure may be related to the incidence of congenital anomalies. Researchers investigated the birth outcomes of Navajo infants born between 1964 and 1981 at the IHS hospital in Shiprock. The research concluded that there were trends in occurrences of adverse birth outcomes that lend limited support for the hypothesis that adverse genetic outcomes are related to radiation exposure. The associations were weak between unfavorable birth outcomes (including congenital anomalies and stillbirths) and radiation exposure of the parents. The only statistically significant association was identified when the mother lived near uranium mill tailings or mine waste sites. However, when placing these conclusions in context, the researchers state that given the extensive uranium mining operations that have gone on for decades, including radiation exposures at levels

> greatly exceeding what would be allowed today, the lack of clear evidence for increased risk of adverse outcomes should be reassuring.

FEIS at 3-85 (citations omitted). Thus, while acknowledging that the data are not conclusive, the FEIS nonetheless emphasizes that the high level of congenital abnormalities *may* in fact be the direct result of past uranium mining operations in the area.

The FEIS further discusses this adverse legacy of previous uranium mining in the Church Rock region. This was a time when "miners were exposed to radiation levels greatly exceeding what would be allowed today and were poorly informed of the potential health effects of radon gas." *Id.* at 3-87. The FEIS duly notes this "long history of uranium mining and milling." *Id.* at 4-124. It describes how:

> The Church Rock facility as proposed would mine an area previously mined by underground mining. . . . Uranium mining was a large employer in the area and many individuals worked in the mining and milling operations. Early mines and mills operated under much less stringent standards than exist today, and this resulted in large exposures to radioactive materials, especially radon and its daughters. The exposures were large enough to result in a high incidence of cancer among workers, and information gathered on these workers resulted in development of risk factors on radon.

> In addition, the methods used to mine and mill the uranium (i.e., "conventional" mining) resulted in very large amounts of radioactively and chemically contaminated sands and slimes, also known as tailings. In 1978, the U.S. Congress passed the Uranium Mill Tailings Control Act, which required standards to be developed to control exposures from tailings and clean up past sites of uranium milling.

Id. at 4-124 to 4-125. This site of former underground mining at Church Rock has been decommissioned and the tailings pile is being stabilized. *Id.* at 4-121.

In addition, the FEIS reveals that a United Nuclear Corporation's uranium mill tailings dam broke in 1979, contaminating the local Rio Puerco River. The dam break released ninety-four million gallons of tailings liquid and 1100 tons of tailings solids into the Rio Puerco. *Id.* at 4-125. As a result, livestock that drank the river water were found to have high radionuclide levels. FEIS at 3-86. The contaminated area was later cleaned subject to the standards of the New Mexico Environmental Improvement Division. *Id.* at 4-125.

The FEIS also depicts how some Navajo Indians lack "adequate or reliable wage work to provide for themselves and their family," and thus must "rely on their livestock and gardens" for subsistence. *See id.* at 3-86. Their sheep, goats, and cattle graze on the land and obtain water from shallow wells on the Rio Puerco. The FEIS identifies the local Navajos' reliance on agriculture-based activities since these "could introduce exposure pathways . . . that potentially affect a population's exposure to – and health consequences of – contamination." *Id.* at 3-85. Accordingly, the models used to predict the project's radiological impacts "account[ ] for exposures possible from being outdoors much of the time and for consuming vegetative matter and animals affected by the project." *Id.* at 4-117; 4-75.

In addition, the FEIS acknowledges that one possible land use impact may be the "temporary disruption of livestock grazing at project sites." *Id.* at 4-94. This would "adversely affect Navajo who have grazing permits for the land and rely on livestock as an important economic resource." *Id.* The FEIS deems these land use interruptions an environmental justice impact, and calls for appropriate mitigative measures, including providing compensation to grazing rights permitees "for the temporary loss of their grazing permits." *Id.* at 4-118. These interruptions are expected to be temporary, given the sequential nature of ISL mining operations. *Id.* at 4-92.

One of the most significant environmental and health impacts possible from Section 8 mining may occur if HRI uses surface water discharge as a liquid waste disposal method for Section 8. While this is only a possibility – for HRI has not determined whether it will use surface water discharge and it would need appropriate approvals and permits – the FEIS does not shirk from revealing the potential consequences of this waste disposal method, and its potentially amplified consequences for the local Navajo population. If HRI were to discharge wastewater into surface water, the uranium concentration of the wastewater would exceed NRC regulatory standards. *Id.* at 4-115. As the FEIS explains, "exposures to individuals who drink the [river] water prior to full mixing in the stream could result in an individual dose that exceeds the 1 mSv (100 mrem) limit. Exceeding a regulatory limit is considered a significant adverse effect. This alternative would, therefore, result in a significant environmental justice impact." *Id.* at 4-116; *see also id.* at 4-87.

The FEIS elaborates further:

> The conservative scenario that results in the individual dose is a highly unlikely occurrence because individuals are not likely to drink from the river at the wastewater discharge site. However, the local population is known to drink directly from the Rio Puerco and to water livestock there. The livestock provide milk and meat for their owners. Because of these subsistence activities, it is possible that individual doses could be much higher to the Navajo population than they would be to another population that did not participate in such subsistence activities. Further, this same stream has elevated background levels of naturally occurring uranium and has been contaminated further by a mill tailings dam break and mine dewatering effluent discharge. Cumulative exposures to the population using the water are an important consideration under NEPA.

> This alternative must be fully analyzed before receiving further consideration.

Id. at 4-116. Indeed, HRI is not currently authorized to go forward with this waste disposal option. At a minimum, it would have to request and obtain an exemption to our regulatory requirements. The FEIS fully recognizes that the additional, significant incremental radiation from surface water discharge at Section 8 might combine with existing levels of radiation in the river to cause a significant cumulative impact for the Navajo population. Further technical and environmental analysis would be needed to determine this, if and when HRI ever proposes this liquid waste disposal option.

In addition, the FEIS points out disagreement within the Navajo community over the HRI project. Due to the adverse impacts of former uranium mining activities in the region, the Navajo Nation in 1983 issued a moratorium on uranium mining, renewed by tribal executive order in 1992. *Id.* at 3-87. The FEIS points out, however, that there are conflicts between the Navajo Nation's moratorium and the views of particular Navajo chapters. "Referenda held at the Church Rock and Crownpoint chapters, where the proposed project would be located, supported the HRI proposal despite the moratorium." *Id.* Similarly, while some Navajo organizations have denounced the HRI project, others support it. *Id.* at 3-84. The project does have the secondary benefit of creating jobs in the local community. *Id.* at 5-3 to 5-4; 50 NRC at 126-27.

In light of these conflicts, the NRC's role in reviewing the license application has been to determine what health and environmental impacts could result from the project. FEIS at 4-120. The licensing decision, "which will be based on the FEIS, the Safety Evaluation Report, and the hearing record . . . will be the NRC staff's determination of whether the local community's safety and health can be assured." *Id.* at 4-120.

3. Analysis

The Commission believes that the FEIS sufficiently identified this project's environmental justice implications, at least insofar as Section 8 is concerned. With the exception of the potential radiological impact of surface water discharge, the FEIS concludes that overall cumulative impacts to the local population will be minor, even considering the particular circumstances of the environmental justice population. The intervenors' arguments do not point to any serious deficiency in the environmental justice analysis, which, at bottom, is similar to a cumulative impacts analysis but also takes into account relevant features of the minority community.

In this proceeding, the intervenors have had the opportunity to litigate whether Section 8's radiological, groundwater, and other impacts pose any significant risk of public health or environmental damage. Essentially, the intervenors' environmental justice arguments – like so many of their NEPA claims – are rooted in these earlier technical arguments raised unsuccessfully before the Presiding Officer. In a series of Partial Initial Decisions, the Presiding Officer considered but rejected their numerous challenges. The Commission, also, has had the opportunity to consider the intervenors' various claims of adverse impacts, both when we considered their earlier petitions for review and, now, in our review of the Presiding Officer's NEPA decision and the FEIS. We, like the Presiding Officer, have not found the intervenors' arguments on health and safety and environmental impacts persuasive, at least insofar as Section 8 is concerned.

The intervenors claim that the FEIS "ignore[s] data showing that poverty, geographic isolation, poor health conditions, and ongoing radiological contamination from earlier uranium mining activities make the Church Rock community especially vulnerable." *See* Intervenors' Brief at 52. While it is always possible to provide more detail and more analysis, the Commission believes that the FEIS adequately considers the environmental justice population. The reality of adverse impacts from former mining in the region does not require the conclusion that *any* additional increment of radiation from Section 8 is unacceptable, even if negligible in amount. The intervenors understandably and appropriately focus upon the adverse effects of former mining, but they have not explained why the additional, and expected to be negligible, radiation impact from Section 8 would have any public health and safety significance.[14]

The intervenors would have preferred all manner of additional details, including specific health data on the immediate Church Rock community, to the FEIS's reliance upon information provided by the regional office of the U.S. Indian Health Service. *See* Intervenors' Brief at 53. They do not specify, however, how the absence of additional details makes a crucial difference given the negligible radiological impact of Section 8. Again, the focus of the FEIS is not merely on existing radiological conditions at Section 8, but on whether the Section 8 mining will make an *appreciable* additional impact. The FEIS expressly recognizes that the local population largely lives at a poverty level, suffers disproportionately from various ailments, and may suffer from radiation-caused health effects. The intervenors, though, point to no specific facet of the Church Rock population's health that conceivably would alter the FEIS's cumulative impacts/environmental justice conclusions, given the negligible incremental impacts from Church Rock Section 8.

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[14] Indeed, the long-term radiological impact from the Section 8 project may in fact prove beneficial because HRI will need to clean up the area to standards needed for decommissioning the site. Some of the areas currently have higher levels of residual radioactivity than would be permitted for decommissioning, and these areas "may be cleaned up as part of the well field decontamination." FEIS at 4-117.

The intervenors would have liked the Presiding Officer to have required additional mitigative measures, but he found additional measures unnecessary. The FEIS and HRI's license already describe a host of protective, mitigative measures, many of which specifically address environmental justice considerations. *See generally* FEIS at 4-113 to 4-119; *see also id.* at 4-105, 4-14, 4-61 to 4-63, 4-66, 4-87 to 4-88, 4-95, 4-111 to 4-112. In none of their various presentations have the intervenors persuasively depicted a need for additional mitigative measures.

In conclusory fashion, the intervenors call for "mitigative measures for the cumulative effects of potential HRI radiological emission with the ongoing ambient radiation doses to the public in the vicinity of the Church Rock mine." Intervenors' Brief at 54. But the radiological doses from operations at Section 8 are a small fraction of allowable exposures to the public. The intervenors simply have not raised a credible argument on how this additional increment would be of health and safety significance to the area.

The intervenors also fault the Presiding Officer for saying that the Church Rock community lives more than four miles from Section 8. *See* Intervenors' Brief at 54. Instead, the intervenors state, there are at least 350 residents located within two and a half miles of Section 8. The intervenors, however, do not provide any reason for why this distinction would be material. Moreover, the FEIS itself acknowledges that 575 people live within about 3 miles of Church Rock. FEIS at 4-83. Modeling for radiological dose considerations was based upon the nearest residence downwind and on residences located on lease areas. Again, the intervenors have not pointed to any error of consequence in either the Presiding Officer's decision or the FEIS.[15]

Environmental justice issues, however, "may arise at any step of the NEPA process and agencies should consider these issues at each and every step of the process, as appropriate." *See* CEQ Guidance at 8. When the hearing resumes to consider the potential impacts to the other project sites, the topics must include environmental justice, as well as the full panoply of technical and environmental issues raised by ISL mining at those sites. If, for example, the intervenors raise their concerns about the adequacy of the secondary groundwater restoration standard for uranium, they will also be able to cite any specific health data pertinent to whether the local Navajo population – because of existing local health conditions – might face an amplified health risk to kidneys or other organs due to the restoration standard provided in the license.

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[15] The Presiding Officer's statements, however, can at times be confusing. At one point he states that there is "no reason to consider, in the context of a new project, the highly regrettable impacts of prior projects." 50 NRC at 123. We agree with the intervenors that the statement, read literally, is wrong. There certainly *could* be major cumulative impacts if new impacts either add appreciably to or otherwise significantly enhance the adverse effects of existing conditions. Both the FEIS and the Presiding Officer properly considered this issue in their cumulative impacts and environmental justice analyses. The Commission believes the Presiding Officer merely meant to emphasize that the FEIS need not extensively recount all details of the historical mining in the region. This likely was the case since, immediately following his statement, he cites to a page in the intervenors' brief which called for a more "descriptive summary" of past mining.

In conclusion, the Commission finds the FEIS's discussion on environmental impacts adequate. One can always flyspeck an FEIS to come up with more specifics and more areas of discussion that conceivably could have been included. There is no "standard formula for how environmental justice issues should be identified or addressed." CEQ Guidance at 8. Here, though, the FEIS comes to grips with all important considerations at the Section 8 sites. The Commission finds that the FEIS: (1) sufficiently highlights issues pertinent to the environmental justice community, including those factors that might amplify the environmental effects of the project, (2) recommends appropriate mitigative measures, and (3) provides adequate information for effective public participation.[16]

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[16] In CLI-00-12, 52 NRC 1 (2000), the Commission declined to review the Presiding Officer's technical findings on the groundwater impacts to Church Rock Section 8. We did, however, note that the Presiding Officer in three places in LBP-99-30 had referred to an aquifer exemption HRI obtained in 1989 for Section 8, but that a recent Tenth Circuit decision leaves unresolved the ultimate validity of that aquifer exemption. We therefore asked the parties to address the significance to this case of the 1989 exemption and its now yet-unresolved status. Our careful review of the parties' responses leads us to conclude,

(Continued on following page)

IV Conclusion

For the foregoing reasons, the Commission *grants review* of LBP-99-40 and *reverses* the decision. The Commission *remands* the proceeding to the Presiding Officer for further proceedings, which shall resume approximately six months from the date of this order. The Commission *grants* review of the NEPA/environmental justice portions of LBP-99-30, and *affirms* the decision.

IT IS SO ORDERED.

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with the NRC staff, that "the technical merits of LBP-99-30's groundwater findings . . . would be the same, regardless of whether or not HRI's Section 8 is covered by a current valid aquifer exemption." NRC Staff's Answers (Aug. 9, 2000) at 8. While it seems that the Presiding Officer sought to buttress his findings with the occasional reference to the Section 8 aquifer exemption, we agree with the NRC staff that the Presiding Officer's conclusions on groundwater and drinking water hinged not upon the aquifer exemption, but upon a long list of technical reasons given for rejecting the intervenors' claims. *See generally* NRC Staff's Answers at 8-13; LBP-99-30, 50 NRC 77, 101-109 (1999). We therefore concur that the Presiding Officer's "technical groundwater findings would not be undermined should the 1989 aquifer exemption prove not to be valid." NRC Staff's Answers at 7. Quite apart from the existence – or not – of the Section 8 aquifer exemption, the Presiding Officer was satisfied that "the underground geology of this area and the monitoring programs that HRI will implement carefully attend to the protection of drinking water." *See* 50 NRC at 109.

Of course, HRI's license requires it to obtain all necessary permits from the appropriate regulatory authorities. *See* License Condition 9.14. If HRI proves unable to obtain a current valid aquifer exemption and Underground Injection Control (UIC) permit for Section 8, no mining can take place in Section 8.

For the Commission

Annette L. Vietti-Cook
Secretary of the Commission

Dated at Rockville, Maryland, this 31st day of January, 2001.

CLI-00-12

Cite as 52 N.R.C. 1 (2000)

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:
Richard A. Meserve, Chairman
Greta J. Dicus
Nils J. Diaz
Edward McGaffigan, Jr.
Jeffrey S. Merrifield

IN THE MATTER OF HYDRO RESOURCES, INC. — No. 40-8968-ML
(P.O. Box 777, Crownpoint, New Mexico 87313) — July 10, 2000

MEMORANDUM AND ORDER

Hydro Resources, Inc. ("HRI"), is seeking a license for a proposed *in situ* mining project in New Mexico. The NRC staff granted the license, but several intervenors have challenged its validity in an adjudicatory proceeding initiated under 10 C.F.R. Part 2, Subpart L. Today's decision is another in a series of appellate decisions in that proceeding. *See, e.g., Hydro Resources, Inc.*, (2929 Coors Road, Suite 101, Albuquerque, NM 87120), CLI-00-08, 51 NRC 227 (2000).

In this decision, we consider petitions for review filed by intervenors Eastern Navajo Dine Against Uranium Mining ("ENDAUM") and the Southwest Research and Information Center ("SRIC"). *See* 10

C.F.R. §§ 2.786 and 2.1253. Intervenors seek review of three Presiding Officer Partial Initial Decisions: LBP-99-18, 49 NRC 415 (1999) (technical qualifications); LBP-99-19, 49 NRC 421 (1999) (radioactive air emissions); and LBP-99-30, 50 NRC 77 (1999) (groundwater, cumulative impacts, National Environmental Policy Act, and environmental justice). Also before the Commission is a motion by ENDAUM and SRIC to reopen the record to consider an affidavit by Dr. John Fogarty that raises questions about an NRC standard applied in this case for determining the allowable concentration of uranium in drinking water. Both HRI and the NRC staff oppose the petitions for review and the motion to reopen.

After careful review of the petitions, the responses, and the record, the Commission has decided to deny review on all technical issues – *i.e.*, LBP-99-18, LBP-99-19, and the groundwater portion of LBP-99-30[1] – and to deny the motion to reopen. We are, however, referring the generic issues raised by Dr. Fogarty's affidavit to the NRC staff for appropriate action. Finally, we direct the parties to submit briefs to the Commission providing further information on the practical and legal significance of a recent decision of the United States Court of Appeals for the Tenth Circuit. *See Hydro Resources, Inc. v. EPA*, 198 F.3d 1224 (10th Cir. 2000).

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[1] The remainder of LBP-99-30 deals with NEPA, environmental justice and other issues that the Commission still is considering and does not resolve here. The Commission also has not yet completed its consideration of the Presiding Officer's decisions to "bifurcate" the proceeding by site and to hold in abeyance all litigation on issues not involving the "Section 8" site. *See Hydro Resources, Inc.*, CLI-00-08, 51 NRC at 242-43.

A. Petitions for Review

The Presiding Officer's findings in LBP-99-18, LBP-99-19, and section II of LBP-99-30 rest heavily upon his analysis of the parties' fact-specific submissions and arguments. As we have held previously in this proceeding, "[b]ecause the Presiding Officer has reviewed the extensive record in detail, with the assistance of a technical advisor, the Commission is generally disinclined to upset his findings and conclusions, particularly on matters involving fact-specific issues or where the affidavits or submissions of experts must be weighed." *Hydro Resources, Inc.*, (2929 Coors Road, Suite 101, Albuquerque, NM 87120), CLI-99-22, 50 NRC 3, 6 (1999). While we certainly have discretion to undertake a *de novo* factual review where appropriate, we ordinarily "'attach significance to [the presiding officer's] evaluation of the evidence and . . . disposition of the issues,'" and we do not "second guess" his or her reasonable findings. *Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 93 (1998), quoting *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-355, 4 NRC 397, 403-05 (1976).

With these principles of appellate review in mind, the Commission has carefully considered intervenors' challenge to the Presiding Officer's findings on radioactive air emissions, groundwater, and technical qualifications and find unpersuasive the arguments for Commission review of these findings. Intervenors have identified no "clearly erroneous" factual finding or important legal error requiring Commission correction. *See* 10 C.F.R. § 2.786(b)(4). Nor do we agree with intervenors that the Presiding Officer's procedural rulings prejudiced their ability to make their case. Accordingly, we see no reason to call for full briefing or for plenary Commission review. Two of intervenors' arguments, however, warrant brief special comment, as the Presiding Officer said little about them.

First, intervenors complain that, after the initial pleadings and submissions, the Presiding Officer posed additional written questions to the parties on technical qualifications, radioactive air emissions, groundwater, and NEPA issues. As the intervenors' complaint goes, the additional questions unfairly permitted HRI and the NRC staff to cure fatal deficiencies in their initial written presentations. We have reviewed the questions posed by the Presiding Officer, along with the parties' answers. The questions seem to us a legitimate effort to obtain clarification or elaboration of assertions in existing pleadings. Our rules expressly empower presiding officers, on their "own initiative," "to submit written questions to the parties." 10 C.F.R. § 2.1233(a). This has been a complex, lengthy proceeding with a host of highly technical issues, many of which overlap. We cannot fault the Presiding Officer for seeking additional focused discussion, analysis, or other clarification to assist him in making his ultimate findings.

Second, Intervenors fault the Presiding Officer for finding HRI's technical qualifications acceptable even though HRI's license application did not identify particular personnel for safety-sensitive positions. Intervenors say that "there are five key positions in HRI's structure, but [that] the individuals whom HRI has cited for their experience will fill only three of those positions." *See* Intervenors' Petition for Review, at 5 (Sept. 3, 1999). But it is hardly surprising that HRI has not yet hired a full staff. HRI forthrightly has acknowledged that it has no immediate plan to begin *in situ* mining at the licensed site. As the NRC staff has explained, Part 40 license applicants need not provide, "as part of the application process, the names of individuals who will fill positions within its organization." *See* NRC Staff's Response to Petition for Review, at 10 (Sept. 17, 1999). A commitment to hire qualified personnel prior to operations suffices. The NRC staff's ongoing enforcement role is well-suited to verifying that HRI satisfies all license-imposed minimum qualifications requirements when HRI hires employees to fill vacant positions.

Here, the NRC staff evaluated and found adequate HRI's proposed organizational structure, "including the expertise and training requirements of key HRI corporate positions." *Id.* at 9. License conditions control the specific qualifications (education, training, and experience) necessary for HRI's Radiation Safety Officer and any Radiation Safety

Technician, and further outline the requirements of HRI's radiation safety training program for all site employees. *See* License Condition 9.7. Additional license conditions govern written standard operating procedures, and any corporate changes that may affect the assignments or responsibilities of radiation safety personnel. *See* License Conditions 9.8, 9.10. License conditions also dictate the minimum education and experience requirements for other key positions – the Vice President of Health, Safety, and Environmental Affairs, the Vice President of Technology, and the Environmental Manager. *See* License Condition 9.3 (incorporating minimum qualifications for these positions, listed in HRI's Consolidated Operations Plan (COP), Rev. 2.0, at 132-33 (Aug. 15, 1997).[2]

There is, in short, no good reason for the Commission to review the findings made by the Presiding Officer in LBP-99-18, LBP-99-19 and Part II of LBP-99-30, and we decline to do so.

B. Motion to Reopen

Recently, during the appellate phase of this proceeding, intervenors ENDAUM and SRIC came to the Commission with a motion to reopen the record concerning the "secondary" groundwater restoration standard for drinking water. In this case, the NRC staff used as the secondary standard 0.44 milligram per liter ("mg/l") for natural uranium. *See* License Condition 10.21(A). Intervenors' motion to reopen attacks this standard and relies on an affidavit of Dr. John D. Fogarty. Dr. Fogarty's affidavit, which was not submitted to the Presiding Officer, raises questions about the 0.44 mg/l secondary standard, and points to several studies of uranium chemical toxicity. He argues that the 0.44 mg/l secondary restoration standard is excessively high, chemically toxic if ingested on a long-term basis, and thus unprotective of public health and safety.

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[2] Indeed, the staff in its review found unacceptable HRI's originally-proposed minimum qualifications for Radiation Safety Technicians. The staff accordingly imposed a specific license condition to heighten the minimum level of education and experience for Radiation Safety Technicians. *See* Safety Evaluation Report at 6-7; License Condition 9.7.

We decline to reopen the adjudicatory record. Where, as in this case, a litigant in a licensing proceeding attempts to introduce new factual or expert evidence in an untimely fashion,[3] we will reopen the record only when the new evidence raises an "exceptionally grave issue" calling into question the safety of the licensed activity. *See* 10 C.F.R. § 2.734(a); *see generally Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-886, 27 NRC 74, 76-79 (1988). After reviewing Dr. Fogarty's affidavit and supporting material, we find no "exceptionally grave issue" warranting reopening here. Some context and background are necessary to understand the basis for our finding.

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[3] The intervenors concede their motion to re-open is untimely. The studies Dr. Fogarty primarily relies upon were published well before the hearing on Section 8 closed, and before the intervenors submitted their written presentation on groundwater protection. Nonetheless, the intervenors claim that they could not have presented these studies without the sponsorship of Dr. Fogarty. This claim is unpersuasive. Just as Dr. Fogarty conducted a "literature research" on uranium's chemical toxicity, the intervenors (or their technical experts) likewise could have done so.

According to HRI's license, lixiviant may not be injected into a well field before additional groundwater data is collected and analyzed to establish groundwater restoration goals for each monitored aquifer of the wellfield. For each water quality parameter measured – uranium concentration is one of them – the *primary* groundwater restoration goal is to return the parameter to its average original baseline level. *See* License Condition 10.21. Therefore, the primary restoration goal for uranium, as well as for all parameters, will be to return to the average "pre-lixiviant injection level [ ]." *Id.*

The *secondary* water restoration goal only becomes an issue if HRI cannot restore the water to the primary goal. For uranium concentration, the NRC staff set the secondary restoration goal at 0.44 mg/l. The 0.44 mg/l standard is the focus of Dr. Fogarty's concerns. But for the Church Rock Section 8 site – the only site considered by the Presiding Officer – it is unlikely that the secondary restoration standard will ever come into play. The Final Environmental Impact Statement estimates the current average level of uranium at Section 8 to be 1.8 mg/l, a level well above the secondary restoration goal of 0.44 mg/l. *See* FEIS 3-36. HRI will not be required to restore the uranium level in Section 8 to a cleaner, more stringent level than the average level already existing in Section 8. The 1.8 mg/l estimate is the average for uranium drawn from water sampling data collected thus far.

We are mindful that HRI has yet to collect the additional data necessary to establish a *definitive* baseline for uranium at Section 8. *See* License Condition 10.21. It is conceivable that in the end the Section 8 baseline will prove lower than 1.8 mg/l or even lower than 0.44 mg/l. But our hearing process does not provide a forum for litigating all conceivable outcomes, no matter how remote and speculative. Here, considering the water quality data already collected, the Commission believes it is highly unlikely that the baseline level of uranium in Section 8 will prove to be so much lower than 1.8 mg/l that it falls under the secondary restoration standard of 0.44 mg/l.

Thus, given that: (1) HRI may not inject lixiviant into a well field before additional groundwater data have been collected and primary restoration goals have been established; and (2) the challenged secondary restoration goal appears unlikely ever to even be an issue for Section 8, the first section to be mined, the Commission finds that Dr. Fogarty's affidavit does not raise immediate safety concerns and is unlikely even in the long term to have safety significance at the Section 8 site. In short, there are no "exceptionally grave" exigent circumstances sufficient to warrant the extraordinary step of reopening the record and restarting the hearing process.[4]

C. Tenth Circuit Decision

Another groundwater-related issue also warrants discussion. Intervenors ENDAUM and SRIC have filed a motion to supplement the record, claiming that a recent Tenth Circuit decision established HRI's lack of either a valid underground injection control ("UIC") permit or a valid aquifer exemption under the Safe Drinking Water Act ("SDWA") for the Section 8 site. *See Hydro Resources, Inc. v. EPA*, 198 F.3d 1224 (10th Cir. 2000), *rehearing en banc denied*, No. 97-9566 (Mar. 30, 2000). Intervenors maintain that "[a]ny findings by the Presiding Officer that rest on the presumption of a validly issued aquifer exemption or

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[4] We note that Dr. Fogarty's concerns may bear on the other three sites covered by the HRI license. Since the record is not closed concerning those sites, the petitioners may raise this groundwater issue in the hearing on those sites. *See* CLI-00-08, 51 NRC at 242; LBP-99-40, 50 NRC 273, 276 (1999). There is no immediate health and safety concern because HRI has stated it has no current plans to mine those sites in the near future and, moreover, HRI may not begin mining those sites without first fulfilling various legal obligations. *See id.* Because Dr. Fogarty's concerns raise generic issues regarding secondary groundwater standards, the Commission is referring this issue to the staff for appropriate action. If later Board proceedings or staff findings suggest that rulemaking or other licensing actions are necessary, the Commission remains free to take such action.

UIC permit must be reversed." *See* Motion to Supplement the Record at 3 (Jan. 27, 2000).

The Tenth Circuit decision – of which we may take judicial notice without "supplementing" the record – upheld EPA's decision to treat Section 8 as "disputed" Indian Country. When land in question holds "Indian country" status the applicable UIC requirements are those of the federal UIC program. If, however, Section 8 were found not to be Indian country, then New Mexico's state-administered IUC program would apply. HRI obtained a UIC permit for Section 8 from New Mexico in 1989, but has not obtained a federal permit. The Tenth Circuit decision found that "Section 8 lands are subject to a jurisdictional dispute requiring implementation of the direct federal UIC program under the SDWA." *See* 198 F.3d at 1254. Consequently, because of this as-yet- unresolved jurisdictional dispute, "HRI must now obtain a permit from EPA prior to commencing underground injection on Section 8." *See id.* at 1237. HRI and the NRC staff maintain that the Tenth Circuit decision is irrelevant to the licensing issues at stake in this case.

We frankly are uncertain about the relevance of the Tenth Circuit decision to our case. The Presiding Officer referred to the aquifer exemption in a number of places in his decision below. *See, e.g.*, 50 NRC at 108 ("[t]his exemption means that . . . there is no drinking water to be protected at this site"). *See also id.* at 102, 109. Despite intervenors' motion to supplement the record and the responses of HRI and the NRC staff, it remains unclear to us what effect there would be, if any, upon the Presiding Officer's findings if Section 8 were found conclusively to fall within "Indian country," and HRI no longer possessed a valid aquifer exemption or UIC permit.

Accordingly, the Commission requests the parties to answer the following questions: (1) Did the Presiding Officer rely upon a current valid aquifer exemption or UIC permit for any of his technical groundwater findings? (2) If so, would any of these findings be undermined if Section 8 ultimately were found conclusively to fall within "Indian country" and thus within the jurisdiction of the federal UIC program? (3) Was it even necessary for the Presiding Officer to address whether the HRI project would comply with the Safe Drinking Water Act? (4) What practical effect does the Tenth Circuit's decision have upon HRI's schedule or plans for mining Section 8?

The parties shall respond to these questions in 15 pages or less. Responses shall be filed simultaneously, and within 30 days of this order.

CONCLUSION

For the foregoing reasons, the Commission (a) *denies* the petitions for review challenging LBP-99-18, LBP-99-19 and section II of LBP-99-30, (b) *denies* the motion to reopen, and (c) *directs* the parties to file responses to the Commission's questions on the effect of the Tenth Circuit's decision in *Hydro Resources, Inc. v. EPA*.

IT IS SO ORDERED.

For the Commission[5]

Annette L. Vietti-Cook
Secretary of the Commission

Dated at Rockville, Maryland this 10th day of July, 2000.

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[5] Commissioner Dicus was not available for the affirmation of this Order. Had she been present, she would have affirmed the Order.

CLI-06-1

Cite as 63 N.R.C. 1 (2006)

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:
Nils J. Diaz, Chairman
Edward McGaffigan, Jr.
Gregory B. Jaczko
Peter B. Lyons

IN THE MATTER OF HYDRO RESOURCES, INC. (P.O. Box 777, Crownpoint, New Mexico 87313)	No. 40-8968-ML July 10, 2000

MEMORANDUM AND ORDER

In this decision, we consider a petition for review filed jointly by intervenors Eastern Navajo Dine Against Uranium Mining (ENDAUM), Southwest Research and Information Center (SRIC), Grace Sam, and Marilyn Morris. The intervenors seek review of LBP-05-17,[1] the Presiding Officer's Partial Initial Decision, in Phase II of this proceeding,[2] on groundwater protection, groundwater

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[1] 62 NRC 77 (2005).

[2] The Hydro Resources Inc. (HRI) license authorizes HRI to conduct *in situ* leach (ISL) uranium mining at four sites in McKinley County, New Mexico: Church Rock Section 8, Church Rock Section 17, Unit 1, and Crownpoint. Phase I of the proceeding focused on Section 8. Phase II involves intervenor challenges

(Continued on following page)

restoration, and surety estimates. Licensee Hydro Resources, Inc. (HRI) and the NRC staff oppose the petition for review. After careful consideration of the intervenors' petition, the responses, the Presiding Officer's decision, and cited portions of the record, we deny review of LBP-05-17.

The Presiding Officer's detailed decision in LBP-05-17 rests upon his analysis of extensive fact-specific arguments presented by the parties' technical experts. As we have said earlier in this proceeding, where a "Presiding Officer has reviewed [an] extensive record in detail, with the assistance of a technical advisor, the Commission is generally disinclined to upset his findings and conclusions, particularly on matters involving fact-specific issues or where the affidavits or submissions of experts must be weighed."[3] While we certainly have discretion to undertake a *de novo* factual review, we "generally do not exercise that authority where a Licensing Board has issued a plausible decision that rests on carefully rendered findings of fact."[4] We carefully have considered the intervenors' challenges to LBP-05-17. We find, however, that the intervenors have not identified any

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to HRI's license relating to mining in the Church Rock Section 17, Unit 1, and Crownpoint sites.

[3] CLI-00-12, 52 NRC 1, 3 (2000), *citing* CLI-99-22, 50 NRC 3, 6 (1999); *see also Louisiana Energy Services, L.P.* (National Enrichment Facility), CLI-05-28, 62 NRC 721, 723 (2005).

[4] *See Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-03-8, 58 NRC 11, 25-26 (2003).

"clearly erroneous" factual finding or significant legal error, or any other reason warranting plenary review.[5]

1. Hearing Rights

The intervenors argue that the Presiding Officer erred when he approved four license conditions that will allow particular determinations to be made post-licensing. These license conditions require HRI, prior to injecting lixiviant into a well field, to (1) establish the baseline groundwater quality (the average well field concentration existing prior to mining operations) for specified groundwater quality parameters (LC 10.21);[6] (2) establish the upper control limits for three specified groundwater quality parameters (LC 10.22);[7] (3) conduct groundwater pump tests to assure

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[5] *See* 10 C.F.R. 2.786(b)(4) (2004). The NRC has amended its adjudicatory procedural rules in 10 C.F.R. Part 2. *See* Final Rule, "Changes to Adjudicatory Process," 69 Fed. Reg. 2182 (Jan. 14, 2004). For cases such as this one, docketed prior to February 13, 2004, the previous procedural rules, including the former 10 C.F.R. § 2.786, continue to apply. A substantially equivalent new rule now appears at 10 C.F.R. § 2.341(b)(4) (2005).

[6] The primary groundwater restoration goal is to return all groundwater quality parameters to the baseline level. If the baseline levels cannot be achieved, the secondary restoration goal is to return the groundwater quality to the maximum concentration levels as specified in the Environmental Protection Agency's secondary and primary drinking water regulations or, for certain parameters, to New Mexico standards. *See* LBP-05-17, 62 NRC at 89 (referencing LC 10.21).

[7] During mining operations, HRI will need to monitor three groundwater parameters (chloride, bicarbonate, and electrical conductivity) at a ring of monitor wells at prescribed locations

(Continued on following page)

that aquitards[8] provide adequate containment layers for the Westwater Canyon Aquifer at Section 17, Unit 1, and Crownpoint (LC 10.23);[9] and (4) test for fractures that could serve as conduits for groundwater contamination (LC 10.31).

The intervenors argue that these license conditions violate their statutory rights, under the Atomic Energy Act, to a hearing on issues material to licensing.[10] More specifically, they claim that these license conditions "leave room for the exercise of judgment or discretion by HRI in establishing baseline

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outside the mine field, to ensure that the parameter concentrations remain below established upper control limits. Upper control limits are derived from groundwater baseline quality by taking the established groundwater baseline mean for a parameter (after outliers have been eliminated), and then adding five standard deviations. *See* LBP-05-17, 62 NRC 77, 93 n.8; LC 10.22.

[8] An aquitard is a geologic unit exhibiting characteristics that generally retard the flow of groundwater (*e.g.*, shales, clay, etc.).

[9] Groundwater pump tests involve pumping a well in an aquifer and then monitoring water levels in observation wells located within the aquifer and in overlying and underlying water-bearing units. *See* HRI Consolidated Operations Plan at §§ 8.5, 8.5.1, 8.5.2. If the groundwater levels in the overlying and underlying water-bearing units do not change during the pump tests, the water-bearing units are likely separated from the aquifer by confining layers (*i.e.*, aquitards, or geologic formations that retard the flow of groundwater).

[10] AEA, § 189, 42 U.S.C. § 2239. *See generally Union of Concerned Scientists v. Nuclear Regulatory Comm'n*, 735 F.2d 1437 (D.C. Cir. 1984), *cert. denied*, 469 U.S. 1132 (1985).

groundwater quality, UCLs [upper control limits], and whether the Westwater [aquifer] is vertically confined and free of fractures."[11] They claim a right to an adjudicatory hearing on future determinations that may be made under these license conditions.

The intervenors are correct that "[p]ost-hearing resolution [of licensing issues] must not be [employed] to obviate the basic findings prerequisite to a license, including a reasonable assurance that the facility can be operated without endangering the health and safety of the public."[12] But here the basic findings on groundwater protection necessary for a licensing decision have been made. The Presiding Officer in LBP-05-17 found reasonable assurance that groundwater at the Section 17, Unit 1, and Crownpoint sites will be adequately protected. He reviewed extensive data submitted by HRI and the NRC staff, including preliminary pump test data, and data from HRI's exploration drill holes and geophysical logs, as well as intervenor arguments challenging that data. Based upon information in the record, he concluded that the Westwater Aquifer is confined at the Section 17, Unit 1 and Crownpoint sites, and that drinking water supplies will be adequately protected.[13] Prior to injecting lixiviant at a mine site, HRI must conduct pump testing to "confirm" that the Westwater Aquifer indeed is contained at the mining sites.[14] These tests are "part of a multifaceted and ongoing [regulatory] process," for assuring groundwater protection.[15]

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[11] Intervenors' Petition for Review of LBP-05-17 (Aug. 9, 2005) at 5.

[12] *See* Intervenors' Petition at 3 (citing *Consolidated Edison Co. of New York, Inc.* (Indian Point Station, Unit No. 2), CLI-74-23, 7 AEC 947, 951-52 (1974)).

The intervenors argue that the license conditions at issue permit excessive licensee discretion, which could lead, for example, to artificially inflated groundwater quality baselines or improperly conducted pump tests. But we find no clear error in the Presiding Officer's conclusions that the challenged license conditions, together with their procedural protocols, outlined in HRI's Consolidated Operations Plan (COP), "provide a highly detailed, prescriptive methodology for establishing groundwater baselines and UCLs [upper control limits]," and likewise a "highly detailed and prescriptive methodology for establishing the hydrological properties of the mine sites."[16] As the Presiding Officer stressed, "the

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[13] *See, e.g.*, 62 NRC at 121 ("contrary to the Intervenors' assertion, the likelihood of vertical excursions of lixiviant . . . at Section 17 is remote"); *see also id.* at 123 ("adequate record evidence supports the conclusion that the Westwater Aquifer is vertically confined at Unit 1"); *id.* at 124 ("HRI has demonstrated that drinking water supplies will be adequately protected from mining contaminants at Crownpoint").

[14] *See id.* at 121, 124; *see also generally id.* at 106-09, 115-25.

[15] *See id.* at 100, *see also id* at 101-02.

[16] *Id.* at 93, 99.

Intervenors have had a full opportunity – both here and in the prior Section 8 proceeding – to identify flaws, omissions, or irregularities in these procedures [in the license conditions and COP]" that could erroneously affect groundwater baselines, upper control limits, or the pump or fracture testing, such that public health or safety could be affected.[17] The Presiding Officer rejected the intervenors' arguments on the adequacy of the procedures. We find no reason to revisit his conclusion that "the methodology for making these determinations [under the license conditions] is sufficiently detailed and prescriptive so that, assuming HRI complies with that methodology," there is "'reasonable assurance' that these determinations will not endanger public health and safety."[18]

Given the prescriptive nature of the license conditions and their applicable procedures or methodologies, and the hearing opportunity accorded to the intervenors to challenge the adequacy of those procedures, we find reasonable the Presiding Officer's conclusion that the intervenors' hearing rights are not violated by these license conditions. Further, as the Presiding Officer stated, "verification by the NRC Staff that a licensee complies with preapproved design or testing criteria 'is a highly technical inquiry not particularly suitable for hearing.'"[19] We note, additionally, that the HRI license is a performance-based license, and that in this proceeding the intervenors also have had the opportunity to litigate – and did litigate – whether the performance-based licensing complies with the Atomic Energy Act and National Environmental Policy Act (NEPA), and whether it accords undue discretion to the licensee.[20]

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[17] *See id.* at 93-94, 99.

[18] *See id.* at 94 n.11.

The intervenors fear that HRI might not "adhere[ ] to the methodology in its license or the COP [Consolidated Operations Plan]."[21] But as the Presiding Officer found, "[t]his argument, if accepted, would transmogrify license proceedings into open-ended enforcement actions: that is, licensing boards would be required to keep license proceedings open for the entire life of the license so intervenors would have a continuing, unrestricted opportunity to raise charges of noncompliance."[22] In LBP-05-17, the Presiding Officer described how compliance with the license conditions will be subject to the NRC's continuing regulatory oversight and authority.[23] If the intervenors have any cause to believe that HRI is not adequately following the outlined procedures, they can petition the NRC staff for appropriate enforcement action.[24]

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[19] *Id.* at 94 n.11 (quoting *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Storage Installation), CLI-03-8, 58 NRC 11, 20 & n.25 (2003)).

[20] *See* CLI-99-22, 50 NRC 3, 15-18 (1999).

[21] Intervenors' Petition at 6.

[22] 62 NRC at 94.

[23] *See, e.g., id.* at 95, 99.

Waiting until after licensing (although before mining operations begin) to establish definitively the groundwater quality baselines and upper control limits is, as the Presiding Officer stated, "consistent with industry practice and NRC methodology," given the sequential development of *in situ* leach well fields.[25] The site-specific data to confirm proper baseline quality values, and confirm whether existing rock units provide adequate confinement cannot be collected until an *in situ* leach well field has been installed, a point described by the NRC staff's expert.[26]

The intervenors have had the opportunity to challenge the adequacy of the groundwater-related information submitted by HRI and the NRC staff, as well as the methodology of procedures that will be used during the operational stages of mining to assure that groundwater quality remains protected. We find reasonable the Board's conclusion that the intervenors' hearing rights have not been violated.

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[24] *See* 10 C.F.R. § 2.206.

[25] *See* 62 NRC at 94 n.11.

[26] *See, e.g.*, Affidavit of William von Till (April 29, 2005) at 7; (referencing NUREG-1569, "Standard Review Plan for *In Situ* Leach Uranium Extraction License Applications" (June 2003) at 5-43 (pump tests are done "[o]nce a well field is installed," and "[s]uch testing will serve to confirm the performance of the monitoring system and will verify the site conceptual model")).

2. Complaints of Overlooked or "Ignored" Evidence

The intervenors' petition for review also argues that the Presiding Officer ignored factual evidence that they presented. They first argue that the Presiding Officer improperly "applied decisions from the previous litigation on Section 8 to very different factual evidence regarding Section 17, Unit 1, and Crownpoint."[27]

The Presiding Officer did find that earlier decisions in this proceeding (regarding Section 8) already had considered and rejected several of the arguments on aquifer hydrogeology and geochemistry that the intervenors repeated in their groundwater presentation for Section 17, Unit 1, and Crownpoint. He found that the intervenors had not "distinguish[ed] their current challenges from those that were previously rejected by the Commission."[28] The Presiding Officer noted, for example, that the "hydrogeology of the Westwater Aquifer [was] extensively litigated" in the Section 8 phase of the proceeding, that the intervenors raised many of the same arguments about the aquifer previously argued, that Section 17 was located adjacent to Section 8, and that the intervenors failed to provide "any persuasive reason" for why several conclusions made in regard to Section 8 would not also apply to Section 17.[29]

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[27] Intervenors' Petition at 6.

[28] *See* 62 NRC at 87.

The intervenors argue that the Presiding Officer ignored site-specific evidence that they presented on geological differences at Section 17. They similarly argue that the Presiding Officer ignored their site-specific evidence on the geochemical environment at Section 17 and Crownpoint. We have examined the technical site-specific arguments alleged by the intervenors to have been ignored by the Presiding Officer. We find, however, no reason to revisit his conclusions on the relevance of the earlier Section 8 conclusions to the other three mining sites. Moreover, the Presiding Officer made clear that "in any event," even without considering and applying the earlier Section 8 conclusions, he was unpersuaded by the intervenors' groundwater arguments.[30]

The intervenors further argue that "where the Presiding Officer considered Intervenors' evidence and made factual determinations about their contentions, the Presiding Officer ignored critical evidence and arguments," including "important contradictions" in HRI's and the staff's evidence."[31] Again, we

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[29] *See id.* at 116; *see also id.* at 118.

[30] *See id.* at 118, 108-09.

[31] Intervenors' Petition at 8. As HRI explains, it is not necessarily contradictory or internally inconsistent to conclude that the Westwater, "*as a geologic unit,* acts homogeneously, despite having some characteristics of heterogeneity." *See* HRI Response

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carefully examined the intervenors' claims, but discern no reason to revisit the Presiding Officer's conclusions. For example, while the intervenors point specifically to pages 73 to 89 of their groundwater presentation, the Presiding Officer's decision references those very pages, rejecting intervenor arguments.[32] The Presiding Officer clearly found unpersuasive the intervenors' arguments on potential contamination of drinking water supplies. We find no indication that the Presiding Officer failed to address or "ignored" any critical arguments presented by the intervenors. Nor do we find any other reason to believe his factual determinations clearly erroneous.

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to Intervenors' Petition for Review of LBP-05-17 (Aug. 24, 2005) at 9 (emphasis in original).

[32] *See* 62 NRC at 118-25. Another section of the intervenors' groundwater presentation argued that HRI's license violates the Safe Drinking Water Act because if HRI were unable to restore groundwater quality at the Section 17, Unit 1, and Crownpoint sites to the baseline water quality conditions for uranium, the secondary restoration standard for uranium that was specified in the license (0.44 mg/L) exceeded the EPA's maximum concentration limit (MCL) for uranium, which is 0.03 mg/L. HRI and the NRC staff agreed that reducing the secondary restoration standard to 0.03 mg/L was appropriate, and accordingly the Presiding Officer directed that HRI's license be revised to effect that reduction. *See id.* at 92. The Presiding Officer also noted that HRI may not commence ISL mining operations at any site until it obtains, from the appropriate regulatory authorities, an aquifer exemption for the portion of the aquifer where HRI will be mining and an Underground Injection Control permit. *See id.* at 90 (referencing LC 9.14).

Conclusion

For the reasons given in this decision, we *deny* the intervenors' petition for review of LBP-05-17.

IT IS SO ORDERED.

For the Commission

/RA/

Andrew L. Bates

Acting Secretary of the Commission

UNITED STATES COURT OF APPEALS
FOR THE TENTH CIRCUIT

MARILYN MORRIS, et al., Petitioners, v. UNITED STATES NUCLEAR REGULATORY COMMISSION, et al., Respondents, HYDRO RESOURCES, INC., Intervenor-Respondent, ---------------- NAVAJO NATION, Amicus Curiae.	No. 07-9505

ORDER

(Filed May 18, 2010)

Before **LUCERO**, **EBEL** and **FRIZZELL**,* Circuit Judges.

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* Honorable Gregory K. Frizzell, District Court Judge, Northern District of Oklahoma, sitting by designation.

Petitioners' petition for rehearing is denied.

The petition for rehearing en banc was transmitted to all of the judges of the court who are in regular active service. As no member of the panel and no judge in regular active service on the court requested that the court be polled, that petition is also denied.

Navaho Nation's motion for leave to file an amicus curiae brief in support of the petition for rehearing is granted.

Entered for the Court,

/s/ Elisabeth A. Shumaker
ELISABETH A. SHUMAKER,
Clerk

Atomic Energy Act, 42 USCS § 2022(a)

§ 2022. Health and environmental standards for uranium mine tailings

(a) Promulgation and revision of rules for protection from hazards at inactive or depository sites. As soon as practicable, but not later than October 1, 1982, the Administrator of the Environmental Protection Agency (hereinafter referred to in this section as the "Administrator") shall, by rule, promulgate standards of general application (including standards applicable to licenses under section 104(h) [42 USCS § 7914(h)] of the Uranium Mill Tailings Radiation Control Act of 1978) for the protection of the public health, safety, and the environment from radiological and nonradiological hazards associated with residual radioactive materials (as defined in section 101 of the Uranium Mill Tailings Radiation Control Act of 1978 [42 USCS § 7911]) located at inactive uranium mill tailings sites and depository sites for such materials selected by the Secretary of Energy, pursuant to title I of the Uranium Mill Tailings Radiation Control Act of 1978. Standards promulgated pursuant to this subsection shall, to the maximum extent practicable, be consistent with the requirements of the Solid Waste Disposal Act, as amended. In establishing such standards, the Administrator shall consider the risk to the public health, safety, and the environment, the environmental and economic costs of applying such standards, and such other factors as the Administrator determines to be appropriate. The Administrator may periodically revise any standard promulgated pursuant to this subsection. After October 1, 1982, if the Administrator has not promulgated standards in final form under this subsection, any action of the Secretary of Energy under title I of the Uranium Mill Tailings Radiation Control Act of 1978 which is required to comply with, or be taken in accordance with, standards of the Administrator shall comply with, or be taken in accordance with, the standards proposed by the Administrator under this subsection until such time as the Administrator promulgates such standards in final form.

Atomic Energy Act, 42 U.S.C. § 2099

§ 2099. Prohibition

The Commission shall not license any person to transfer or deliver, receive possession of or title to, or import into or export from the United States any source material if, in the opinion of the Commission, the issuance of a license to such person for such purpose would be inimical to the common defense and security or the health and safety of the public.

10 CFR § 20.1301

§ 20.1301 Dose limits for individual members of the public.

(a) Each licensee shall conduct operations so that –

(1) The total effective dose equivalent to individual members of the public from the licensed operation does not exceed 0.1 rem (1 mSv) in a year, exclusive of the dose contributions from background radiation, from any medical administration the individual has received, from exposure to individuals administered radioactive material and released under § 35.75, from voluntary participation in medical research programs, and from the licensee's disposal of radioactive material into sanitary sewerage in accordance with § 20.2003, and

(2) The dose in any unrestricted area from external sources, exclusive of the dose contributions from patients administered radioactive material and released in accordance with § 35.75, does not exceed 0.002 rem (0.02 millisievert) in any one hour.

(b) If the licensee permits members of the public to have access to controlled areas, the limits for members of the public continue to apply to those individuals.

(c) Notwithstanding paragraph (a)(1) of this section, a licensee may permit visitors to an individual who cannot be r§ eleased, under § 35.75, to receive a radiation dose greater than 0.1 rem (1 mSv) if –

(1) The radiation dose received does not exceed 0.5 rem (5 mSv); and

(2) The authorized user, as defined in 10 CFR Part 35, has determined before the visit that it is appropriate.

(d) A licensee or license applicant may apply for prior NRC authorization to operate up to an annual dose limit for an individual member of the public of 0.5 rem (5 mSv). The licensee or license applicant shall include the following information in this application:

(1) Demonstration of the need for and the expected duration of operations in excess of the limit in paragraph (a) of this section;

(2) The licensee's program to assess and control dose within the 0.5 rem (5 mSv) annual limit; and

(3) The procedures to be followed to maintain the dose as low as is reasonably achievable.

(e) In addition to the requirements of this part, a licensee subject to the provisions of EPA's generally applicable environmental radiation standards in 40 CFR Part 190 shall comply with those standards.

(f) The Commission may impose additional restrictions on radiation levels in unrestricted areas and on the total quantity of radionuclides that a licensee may release in effluents in order to restrict the collective dose.

10 C.F.R. Part 40, Appendix A, Criterion 9

Financial surety arrangements must be established by each mill operator prior to the commencement of operations to assure that sufficient funds will be available to carry out the decontamination and decommissioning of the mill and site and for the reclamation of any tailings or waste disposal areas. The amount of funds to be ensured by such surety arrangements must be based on Commission-approved cost estimates in a Commission-approved plan for (1) decontamination and decommissioning of mill buildings and the milling site to levels which allow unrestricted use of these areas upon decommissioning, and (2) the reclamation of tailings and/or waste areas in accordance with technical criteria delineated in Section I of the Appendix. The licensee shall submit this plan in conjunction with an environmental report that addresses the expected environmental impacts of the milling operation, decommissioning and tailings reclamation, and evaluates alternatives for mitigating these impacts. The surety must also cover the payment of the charge for long-term surveillance and control required by Criterion 10. In established specific surety arragements, the licensee's cost estimates must take into account total costs that would be incurred if an independent contractor were hired to perform the decommissioning and reclamation work. In order to avoid unnecessary duplication and expense, the Commission may accept financial sureties that have been consolidated with financial or surety arrangements established to meet requirements of other Federal or state agencies and/or local governing bodies for such decommissioning, decontamination, reclamation, and long-term site surveillance and control, provided such arrangements are considered adequate to satisfy these requirements and that the portion of the surety which covers the decommissioning and reclamation of the mill, mill tailings site and associated areas, and the long-term funding charge is clearly identified and committed for use in accomplishing these activities. The licensee's surtey mechanism will be reviewed annually by the Commission to assure, that sufficient funds would be available for completion of the reclamation plan if the work had to be performed by an independent contractor. The amount of surety liability should be adjusted to recognize any increases or decreases resulting from inflation, changes in engineering plans, activities performed, and any other conditions affecting costs. Regardless of whether reclamation is phased through the life of the operation or takes place at the end of operations, an appropriate portion of surety liability must be retained until final compliance with the reclamation plan is determined. This will yield a surety that is at least sufficient at all times to cover the costs of decommissioning and reclamation of the areas that are expected to be disturbed before the next license renewal. The term of the surety mechanism must be open ended, unless it can be demonstrated that another arrangement would provide an equivalent level of assurance. This assurance would be provided with a surety instrument which is written for a specified period of time (e.g., 5 years) yet which must be automatically renewed unless the surety notifies the beneficiary (the Commission or the State regulatory agency) and the principal (the licensee) some reasonable time (e.g., 90 days) prior to the renewal date of their intention not to renew. In such a situation the surety requirement still exists and the licensee would be required to submit an acceptable replacement surety within a brief period of time to allow at least 60 days for the regulatory agency to collect. Proof of forfeiture must not be necessary to collect the surety so that in the event that the licensee could not provide an acceptable replacement surety within the required time, the surety shall be automatically collected prior to its expiration. The conditions described above would have to be clearly stated on any surety instrument which is not open-ended, and must be agreed to by all parties. Financial surety arrangements generally acceptable to the Commission are:

(a) Surety bonds;

(b) Cash deposits;

(c) Certificates of deposits;

(d) Deposits of government securities;

(e) Irrevocable letters or lines of credit; and

(f) Combinations of the above or such other types of arrangements as may be approved by the Commission. However, self insurance, or any arrangement which essentially constitutes self insurance (e.g., a contract with a State or Federal agency), will not satisfy the surety requirement since this provides no additional assurance other than that which already exists through license requirements.